

GINA L. BARNES



Archaeology of
EAST ASIA

The Rise of Civilization in China, Korea and Japan

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The Rise of Civilization
in China, Korea and Japan

Gina L. Barnes



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Preface

Multiple editions

The first edition of this book was published in hardback in 1993 as *China, Korea and Japan: the rise of civilization in East Asia* (London, Thames & Hudson, 1993). In 1999, that version was reprinted in paperback under a better title using the word ‘archaeology’: *The rise of civilization in East Asia: the archaeology of China, Korea and Japan* (London, Thames & Hudson, 1999). Only very minor corrections within word count were made in the paperback edition, and these first two editions have exactly the same pagination and format; I refer to them collectively as ‘CKJ’.

This current offering is a revised edition of the content of CKJ after twenty years. Most of the text has been rewritten; many photographs are also replaced, since those originally published in CKJ mainly belonged to the Thames & Hudson files. Colleagues and others have been most helpful in supplying photos and illustrations with proper copyright for inclusion here. Other illustrations, particularly line drawings, have been re-used from CKJ when nothing better has superseded them.

In trying to bring this book up to date, I have encountered three hurdles. One is the vast amount of information published since 1990, resulting in more detail, in changes of emphasis in the available data, and in changes in our perspectives in viewing those data. Second, it was much easier to condense broad swaths of prehistory into a few paragraphs when I knew less myself. Third, method and theory have become more important in writing any kind of archaeology, so that the setting of East Asian data within these frameworks has become necessary. Data were intentionally selected to illustrate general trends in development, areas of scholarly disagreement, and outstanding florescence in material culture – with a vision of an “East Asian Civilization” at the end of the process. With the increase of information available on the internet, it is no longer necessary nor feasible to indulge in long descriptions of individual sites or cultures – easily obtained elsewhere with a couple of clicks and most likely with enviable color illustrations.

Thus, this revision is much more technical than CKJ, though it remains an *introduction* and is not designed to be comprehensive despite the inevitable generalizations. I have striven to follow the same pattern of discussion as in CKJ, and have also tried to identify corrections to CKJ (in footnotes), particularly in terms of advances in knowledge. I hope that the general reader and beginning student will find the deeper level of detail in this volume still accessible within the overall framework of tracing the development of East Asian societies from the Palaeolithic to the early

historic period. If not, read CKJ first! If so, the framework of time/space/content outlined here will allow deeper forays into those areas of particular interest to the new reader via the Further Readings and the Bibliography.

This series of books has two main readerships: those coming from East Asian studies, and those from archaeology. Accommodations have been made for both groups: explanation of many archaeological methods and concepts for the former, and source information from English-language works as much as possible for the latter. Please forgive these indulgences.

CKJ = the same book in hardback and paperback editions but with different titles:

Barnes, Gina L. (1993) *China, Korea and Japan: the rise of civilization in East Asia*. London: Thames & Hudson (hardback)

Barnes, Gina L. (1999) *The rise of civilization in East Asia: the archaeology of China, Korea and Japan*. London: Thames & Hudson (paperback)ⁱ

Where is East Asia?

Commonly this term refers to the territories of the modern states of China, Korea and Japan. However, state boundaries are meaningful to prehistory only in terms of the investigating organizations and the languages in which reports are written today. The locations of sites are usually (but not in this work) given in terms of modern prefectures and provinces of the individual countries, which are displayed in the maps in Figures 2.1–2.3 for reference. Because of the boundary (or boundless) problem, we will often stray into Mongolia, the Altai, Central Asia and Vietnam to illuminate what was happening in East Asia as strictly defined. However, this work does not deal much with the archaeology of the far west and south Mainland; in particular, Silk Road archaeology is entirely another field which deserves separate treatment.

Dating preferences

One of the most difficult things for newcomers to archaeology anywhere is shifting between BP or ‘years ago’ and BC/AD (BCE/CE) dates – a 2000-year difference. BP (before present) specifically refers to the ‘present’ as 1950 – the date when radiocarbon dating began – and is used primarily for radiocarbon dates (Appendix A). There are several such methods of scientific dating, and dates tend to be given in ‘years ago’ (BP), whereas archaeologists tend to talk in terms of calendar dates BC/AD or BCE/CE.

This book will use two forms of notation: ‘years ago’, and BC/AD; dates for the Pleistocene and Palaeolithic are given as ‘mya’ (million years ago) and ‘kya’ (thousand

ⁱ The preface to the paperback edition (p. 15) gives out-of-date information concerning the University of Durham. The current URL for the Society for East Asian Archaeology is www.SEAA-web.org. Dates for an Early Palaeolithic in Japan have since been discredited.

years ago) in Chapters 3 and 4. Beginning in Chapter 5, dates will be given as BC/AD. Remember, a 2000-year span separates these two systems of ‘years ago’ and ‘BC’, so that the newly dated end of the Pleistocene (see below) at 11.6kya is 9600 BC – quite different from the previously used Pleistocene/Holocene divide of 10,000 years ago or 8000 BC. As far as possible, calibrated dates (see Appendix A) are cited (as cal.), but often it is difficult to tell from publications whether they are calibrated or not, and conventional radiocarbon dates produced decades ago often are missing metadata that allows them to be calibrated. Thus one must remain flexible in dealing with dates due to the many problems in their calculation and presentation; those presented here are only approximations.

Other conventions adopted here are using a small ‘c’ to denote century/centuries and a small ‘m’ for millennium/millennia, as in 5c BC (5th century BC) or 1m AD (1st millennium AD). This saves a lot of text space!

A different problem surrounds the designation BC/AD. These are Christian terms specifically referring to Before Christ and Anno Domini (Year of our Lord). There is a recent trend to amend these to BCE (Before Common Era) and CE (Common Era) to get away from the Christian implications. However, this does not solve the problem since the dividing line is still the birth year of Christ in the Gregorian calendarⁱⁱ – very inappropriate for East Asia where there is nothing ‘in common’ about the Christian division. This book will follow the original system of BC/AD merely because it is more visually distinct and therefore potentially less confusing. The date 0 AD refers here to the dividing line between BC/AD, though there is no Year 0; and while it is proper to put ‘AD’ before the date, I am choosing to put it after, as with BC.

The overall chronological scheme for East Asia is offered in Table 0.1 (below).

Language issues

Out of respect for tradition, I have generally presented East Asian personal names with surname first and given name last. But many East Asian scholars now adopt Western practice and write their surname last. To avoid confusion, when both occur together, I give the surname in small capitals (e.g., ABE Satoshi, Li LIU). Some early individuals are known by only one name.

Many abbreviations frequently used in this book are explained in Appendix B.

Romanization of foreign words in this book employs the Pinyin system for Chinese, the McCune-Reischauer system for Korean, and the Revised Hepburn system for Japanese. These systems are explained, with examples given, in Appendix C.

- For Chinese (indicated in the text as C.), Pinyin is the government-approved transcription system in use since 1979. Wade-Giles, the system previously used by most Western scholars of China, is found in older works and can still crop up in texts by recalcitrant scholars. The Yale system is rarely used except by linguists.

ⁱⁱ Though Jesus might have been born in 5 BC according to astronomical calculations (Humphreys 1991).

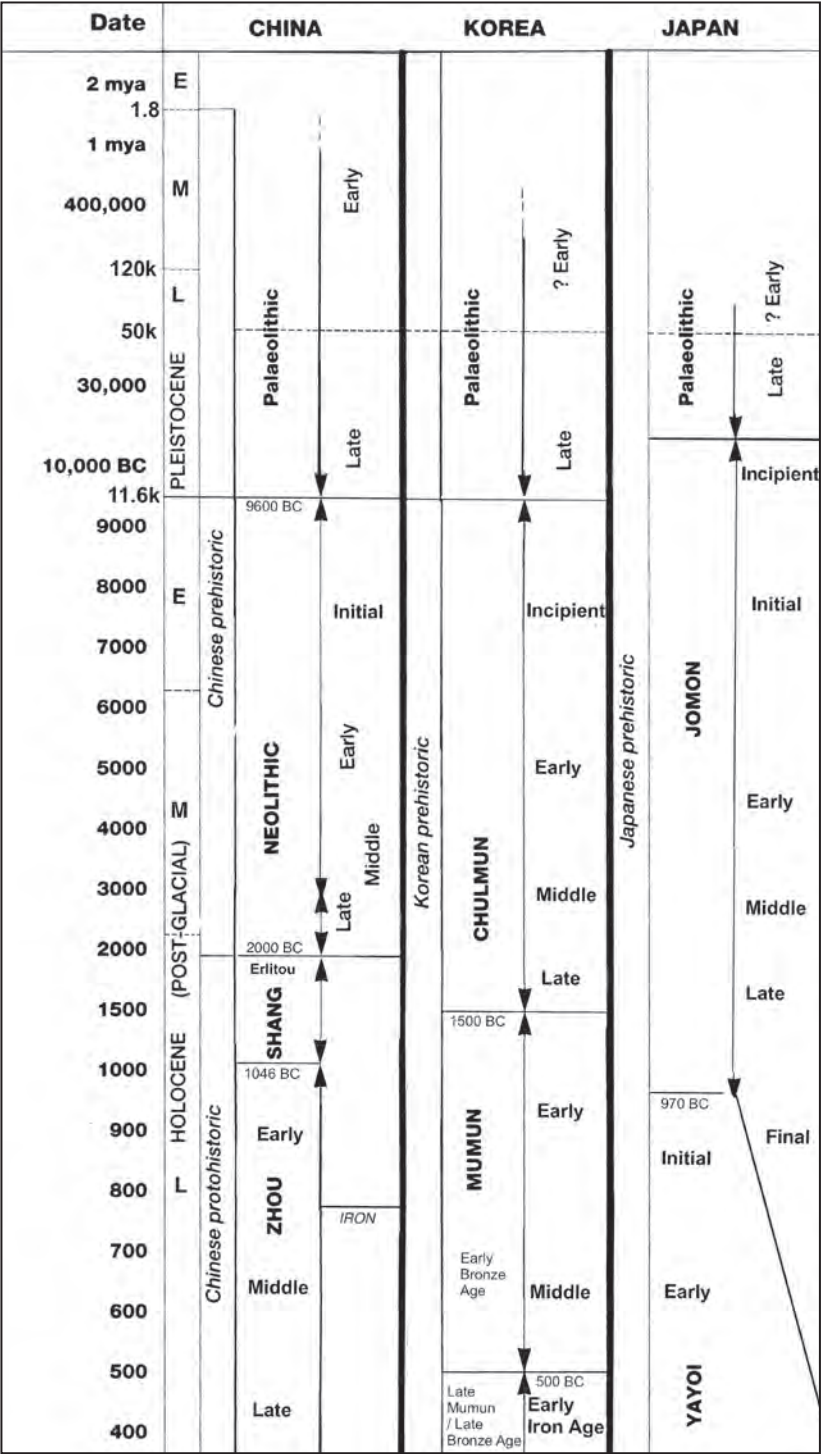


Table 0.1a National periodization schemes for East Asia: early half. See Tables 1.1–1.7 for detailed dates.

Date	CHINA		KOREA		JAPAN	
300	HOLOCENE	Chinese historic	Korean protohistoric	Korean historic	Japanese protohistoric	300 BC
200						YAYOI
100						Middle
0						50 AD
AD 100						Late
200						250
300						400
400						500
500						538/552
600						ASUKA
700						710
800						794
900						HEIAN
1000						1180
1100						MEDIEVAL
1200						KAMAKURA (1185–1333)
1300						MUROMACHI (1333–1573)
1400						MOMOYAMA (1573–1603)
1500						1603
1600						EDO / TOKUGAWA
1700						1868
1800						MEIJI
1900						1912
2000						1925
						1988
						TAISHO
						SHOWA
						HEISEI

Table 0.1b National periodization schemes for East Asia: late half. See Tables 1.1–1.7 for detailed dates through the 8c.

- For Korean (K.), the South Korean government's currently preferred system is difficult for foreigners to use to reconstruct pronunciation despite its internal logic. Therefore, the McCune-Reischauer system will continue to be used here by this recalcitrant scholar, though without diacritics – as explained in Appendix C.

- For Japanese (J.), the Japanese government developed its own scheme of romanization (Kunreishiki), which is very misleading for native English speakers for some pronunciations (compare Wadati and Wadachi, where the latter better reflects the actual sound), so the more congenial Hepburn system is used here.

Appendix C provides further basic information on pronunciation and alternative spellings used in the text. Conversion charts for the variations in national romanization schemes can be found online.

Note on referencing

Chapters have both footnotes (identified by lower-case Roman numerals) and endnotes (Arabic numbers). The former are substantive comments at the bottom of the page that should be read as the chapter progresses; the latter identify references drawn on for data and interpretations in the main chapter text and are presented in the Endnotes section. References for illustrations and data in Figures, Tables and Boxes are given in the Sources section. Each chapter also has a Further Reading list of relevant published materials. All of these different citations are given in the general bibliography. Exploring all these works will obviously yield far more information than can possibly be included in a general introductory survey such as this.

A conscious effort has been made here to leave out the names of authors of other works in the text for the simple reason that the text is already loaded with geographical and cultural names that are difficult to assimilate. I apologize to my fellow scholars for not identifying them in the usual in-text manner, and even more so for not being able to cite many of their works that I would have liked to include. Omitting author names in the text means that passive voice constructions are the norm, to many a grammarian's dismay. A second point is that I have incorporated far more footnotes in this revision than in CKJ. This is to give clear guidance as to where data are being drawn from and what resources can be accessed to follow up the ideas revealed here.

Note on indexing

My indexing is a labor of love; it aspires to be exhaustive if not comprehensive. The entries form special study units in and of themselves; and there are many cross-references, so any topic can be approached from several directions. An idiosyncratic combination of simple alphabetical and compound categorical listings is used; this means that if a particular word or concept is not listed alphabetically, it is probably incorporated into a category. Seek and ye shall find!

Acknowledgments

This book and its predecessor would never have been written but for the education, support, and encouragement offered by teachers, mentors and colleagues, especially those in East Asia who have unstintingly shared with me their data, ideas and camaraderie over five decades. I am eternally grateful to their continued interest and communication, and I welcome new contacts with younger scholars whose investigations have opened up vast new areas for consideration.

For the preparation of this volume, several colleagues have read and commented on draft text, discussed fine points of debates with me, or sent me references or material. I am very grateful for their guidance, but errors and differences of opinion remain my own responsibility. In addition, many colleagues and institutions have donated illustrations or permitted their work to be re-used for this volume (see Sources section); their generosity is greatly appreciated. For all these collaborations, I offer sincere thanks (in alphabetical order) to Y. Abe, BAE Kidong, Martin Bale, Robert Bednarik, Gwen Bennett, Peter Bleed, Mark Byington, Gary Crawford, Paola Demattè, Robin Dennell, DING Pin, DING Zhongli, Erdenebaatar Diimaajav, Dorian Fuller, Junko HABU, Mark Hudson, Fumiko Ikawa-Smith, IWASE Akira, KOBAYASHI Ken'ichi, KOIKE Hiroko, KUDO Yuichiro, KUSUMI Takeo, Gyoung-Ah LEE, LEE Yung-jo, John Lienhard, Kathryn Linduff, Li LIU, LUAN Fengshi, Henry de Lumley, MATSUZAWA Tsugio, MORISAKI Kazuki, NAKAZAWA Yuichi, Mark Lewis, OH Youngchan, ONUKI Shizuo, Bob Ramsey, QIN Ling, Christopher Ramsey, Chen SHEN, SHIN Kyung Cheol, SHODA Shinya, TSUTSUMI Takashi, Anne Underhill, WANG Shijiang, WANG Youping, Mike Waters, and ZHOU Liping. This volume's Sources section credits the specific sources of materials from these scholars and many others used in Boxes, Figures and Tables.

Clare Litt at Oxbow Books has been an ideal commissioning editor, giving me free rein to write as much as I wanted and include as many illustrations as I liked, though she might regret the dense index. And I particularly appreciate the late decision to publish in color – I'm sure to my readers' delight. Sarah Ommanney at Oxbow Books assisted with the illustrations, while Ana Marques helped with last-minute re-drawings. Val Lamb, typesetter, worked closely with me to lay out the book in as lively a manner as possible; her swift and accurate renditions are a work of art and much appreciated. Most important have been my two technical editors, Andrea Greenaker and David Hughes, who have acted as my "grammar; punctuation: an spellin" police and have also pointed out inscrutably written passages for revision. They checked all picture/caption/citation correspondences and worked hard with me to get all the bugs out of the manuscript, but if any remain, those bugs are all mine. I further owe David, my ever loving and supportive partner, much gratitude for releasing me from many obligations "because you're writing a book"! He has made all this effort worthwhile.

To Richard Pearson, who demonstrated to me
that it *is* possible to study all three East Asian countries at once

Chapter 1

Orientation

Prior to nation-states, geography was broad and unbounded, with peoples traveling and intermixing at will. Despite the development of multitudinous regional ‘cultures’ and even states across East Asia, interaction was the name of the game. Thus geography is the basic referent for discussing human occupation of the landscape (Figure 1.1). Since most archaeological reports, however, discuss finds in terms of modern provinces and prefectures, these are given in Figures 2.1–2.3.

Now, let’s take a tour of East Asia to get oriented.

Grounding

Starting from the Yellow Sea

The central geographical point of reference for this text is the ‘Yellow Sea Basin’. The Yellow Sea grades into the East China Sea to the south, but for our purposes, the Yellow Sea Basin is defined as beginning at the Shanghai Delta in the southwest and extending to southern Kyushu in the southeast. The Ryukyu Islands are sandwiched by the East China Sea on the west and the Pacific Ocean on the east. The Yellow Sea is made yellow by the deposits of loess coming off the China Mainland and deposited into Bohai Bay in the northwest, the Bay being formed by the pinching in of the Shandongⁱ and Liaodong peninsulae.ⁱⁱ The Yellow River has changed course many times over the millennia, sometimes draining into the Yellow Sea below the Shandong peninsula. The northeastern Bohai Bay receives the Liao River runoff, draining the Manchurian Basin. East of the Korean Peninsula lies the Eastern Sea, more commonly known as the Japan Sea. The Korean Peninsula and Japanese Islands are divided

ⁱ This is the usual English name, as it forms part of Shandong province; its official name is the Jiaodong peninsula.

ⁱⁱ Capitalized Peninsula is reserved for the Korean Peninsula; all others will be in lower case. Both Shandong and Liaodong are used later as geographical locators that take in more than just their peninsulae.

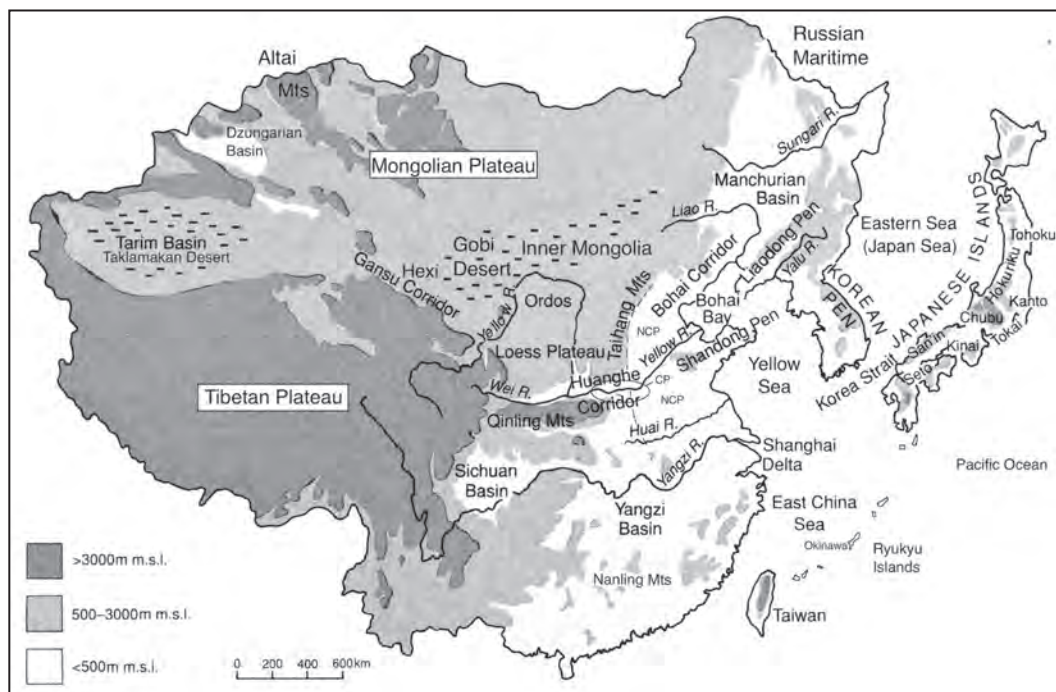


Figure 1.1 The geography of East Asia

formally defined as the modern nations of China, the two Koreas, Taiwan and Japan. Mongolia and the Russian maritime region are indicated here. Deserts are marked with dashes. Although the Tibetan Plateau and Tarim Basin form a large part of modern China, their archaeologies are not specifically dealt with here. East Asia, as covered in this book, can be thought of as centered on the Yellow Sea.

CP = Central Plain, surrounded by NCP = North China Plain

by two straits on either side of Tsushima Island:ⁱⁱⁱ the Korea Strait and the Tsushima Strait, respectively *ca.* 120km and 65km wide at their narrowest points. These will simply be referred to here as the Korea Strait.

Several terms have been devised here to refer to parts of East Asia without using modern nation-state designations. The 'China Mainland' (or just 'Mainland') refers to most of the modern state of China, though the far west (Xinjiang province), the southeastern coast, and Tibet are not dealt with here. I devised the terms 'Pen/Insular' and 'Pen/Insulae' to refer to the combined areas of the Korean Peninsula and the Japanese Islands, whereas the term 'Peninsula(r)' (capitalized) is used specifically to refer to the Korean Peninsula; other peninsulae are not capitalized to make that difference clear. On that Peninsula, names of the five major rivers (the Yalu, Taedong, Han, Kum and Nakdong) are used as geographical locators. The term 'continent(al)' embraces both the China Mainland and the Korean Peninsula, and possibly other regions, in contrast to the Japanese Islands.

Within the Japanese archipelago, areas on the main island (Honshu) are often referred to by sub-regions: Tohoku, Kanto, Chubu, Tokai, Hokuriku, Kinai, and San'in. In addition, the Inland

ⁱⁱⁱ Tsushima is not shown in Figure 1.1, but see Figure 13.1.

Sea area can be referred to as the Seto region and divided into western and eastern portions. Honshu itself is effectively divided into east and west by the ‘waist of Honshu’ at Nagoya City. Finally, I’ve coined three new terms to refer to the land areas underlying the Yellow Sea and Inland Sea when they were exposed as broad Plains during the glacial phases of the Pleistocene (Ice Age) period: first, the Yellow Plain and Seto Plain; then, I refer to the entire northeastern landmass that was exposed during the maximum period of lowered sea level in the Pleistocene as East Asialand, comparable to the Southeast Asian Sundaland.

Mainland geography

The ‘China Mainland’ is divided into the Manchurian Basin in the northeast, the Inner Mongolian steppes in the north, the North China Plain (NCP in Figure 1.1), the Yangzi Basin in central China, and the Sichuan Basin in the southwest. The Yellow River is best used to find oneself in Mainland geography. Rising in the northern Tibetan Plateau, it bends north around the arid Ordos region and then south to meet the Wei River flowing in from the west; it then flows through a narrow passage, which I have named the Huanghe Corridor, onto the North China Plain. Huanghe is the Chinese name meaning ‘yellow river’. Where it emerges from the Huanghe Corridor, the area is traditionally called the Central Plain^{iv} (Zhongyuan, CP in Figure 1.1), considered the heartland of Chinese civilization. Since the Bronze Age, the Yellow River has laid down about 10 meters of alluvium on the North China Plain, burying the ancient landscape and making archaeological recovery extremely difficult. Perhaps because of the multiple changes of course, Neolithic and Bronze Age settlement on the China Mainland concentrated in the Wei River valley, the Central Plain, and the Huai River valley between the Yellow and Yangzi Rivers.

The Qinling Mountains and the Huai River served at different times to mark the division between the north and south Mainland. My term ‘East Coast’ breaches this divide, signifying the coastal region inclusive of the Shandong peninsula to below the Shanghai Delta. The Yangzi Basin and Shanghai Delta developed rice-based cultures different from the Yellow–Wei River drainage millet-based cultures. Influences from this southern region stimulated the development of rice-growing cultures in the southern Pen/Insulae, but how this technology was diffused is still debated.

^{iv} Some scholars include in the Central Plain the Wei River valley and the Anyang region of the North China Plain (Bagley 1999); others limit it closer to the Yellow River course at its emergence onto the North China Plain.

The loesslands

Aeolian sediments blown in from Central Asian deserts accumulated in areas of the central and northeastern Mainland. These deposits could be up to hundreds of meters thick and form an important locus of Palaeolithic research as well as a major resource for Neolithic millet farmers. It is a landscape unfamiliar to most Westerners, heavily dissected by erosion since the Neolithic.

The Northern Zone

In the northern Mainland lie the Manchurian Basin in the northeast, the Mongolian Plateau to the north, and the Tarim Basin in the northwest. The Bohai Corridor (now often called the Liaoxi Corridor) connects the North China Plain to the lower Manchurian Basin, drained by the Liao River; historically, the regions to the west and east of the lower Liao River were respectively designated Liaoxi and Liaodong. The upper Manchurian Basin is drained to the north into the Amur by the Sungari River.

This entire northern region is characterized by increasing aridity from the coast toward Inner Asia, with Manchurian forests grading into Mongolian steppe, steppe desert, and of course the Gobi Desert. The Tarim Basin has as its core the Taklamakan Desert, with steppe to the north and oases lining the southern edge. In the past, the central and western arid areas were once colonized by greater tracts of forest and grasslands, leading to patterns of human settlement rather different from those seen today.

Westward ho!

East–west travel on the China Mainland would seem naturally to follow the Yellow River and the Yangzi River (called in Chinese the Changjiang ‘long river’), but this is not necessarily so. The major route to the west starts from the Huanghe Corridor and follows the Wei River into the Gansu Corridor (now often referred to as the Hexi Corridor). This is the route of the old Silk Road leading from the Central Plain into the Tarim Basin. From the Wei River valley, there is also a route south, across the Qinling Mountains into the Sichuan Basin; this allowed steppe-culture influence to reach this southwestern area, unlike other areas of the southern Mainland.

Eastward bound

Travel across the seas could be accomplished by island-hopping from Taiwan through the Ryukyu archipelago to Kyushu, though this was

a little used route. Leapfrogging from the Shandong to Liaodong peninsulae provided another crossing point. The most treacherous crossing was directly across the Yellow Sea from the Shanghai Delta region to North Kyushu or the southern coast of the Korean Peninsula; boats therefore often hugged the shore of the Yellow Sea instead, but some evidence hints at direct crossings. The Korea Strait was always open, even as a large river in periods of lowest sea level, and required a boat crossing; but the northern Japanese Islands were connected to the Russian maritime region in glacial times, providing a northern entrance into the Japanese archipelago.

North–south divisions

All three areas of East Asia are subject to clear north/south divides extending from the prehistoric to the present. These divisions are partially determined naturally, by climate and resources, but cultural factors are also at work – responding not only to local climates but to proximate peoples.

On the China Mainland, the Qinling Mountains nominally divide North and South China. These mountains separate southern species of animals from northern; even after the introduction of domestic animals, sheep and goats were confined to the north and water buffalo to the south. The North is traditionally characterized by millet and wheat production, while rice was grown in the South. The North includes the loesslands and deserts; northern pottery was made from fine-grained sedimentary deposits derived from these regions. The South has a more volcanic-derived geology, which facilitated the development of high-fired ceramics and porcelain. As we shall see, there are also differences in north–south house structures in certain regions to accommodate such variables as high water tables, cold winters, and timber availability.

On the Korean Peninsula, the divide is not so obvious climatically, but one consistently finds cultural differences throughout pre- and protohistory between the northern and the southern societies. Even in times of early historic ‘unification’ in the United Silla and Koryo periods, the northern boundary was positioned farther south than today’s separation with China. The boundary of the pre-modern Choson state along the Yalu River might be seen as an aberration of the natural differences between north and south persisting throughout prehistory and manifesting itself in the two Koreas today.

In the Japanese Islands, northeast and southwest supported different cultural milieus from prehistoric times onward. The major Jomon settlement was in the northeast, while the major Yayoi tradition belonged to the southwest. The indeterminate boundary, somewhere

in the middle of Honshu, even today distinguishes dialects, food preferences and which side of the escalator to stand on!

National chronologies

Despite the fact that cultural developments occurred across this broad East Asian landscape without regard to modern state boundaries, the cultural histories of the different states are divided into chronological sequences peculiar to each state. Table 0.1 illustrates the different periodization schemes beginning with the earliest Palaeolithic to the present (see also Appendix A for dating conventions). The entity called ‘East Asian civilization’ emerged in the 8c AD; at that point the maturation of governmental systems in all three areas was based on a shared religion (Buddhism), state philosophy (Confucianism) and bureaucratic structure (founded on ‘administrative law’).

Prior to the 8c AD, there is a clear divide between the developmental trajectory of the China Mainland and the Pen/Insular region. State societies appeared on the Mainland by the mid-2m BC, while it was only after the collapse of the successors to those states in the 3c AD that we have state formation in the Pen/Insulae. Thus, there is a 2000-year time lag in socio-political development between these areas which makes generalization at any one temporal slice across East Asia most difficult. A previous reader of CKJ commented that “it jumps around a lot chronologically”. This is inevitable given the developmental nature of the region and an inability to describe everything simultaneously, so the chronological chart in Table 0.1 has to be the anchor for following the different cultural sequences through time and across space. Also, it must be noted that this is a standard chronology, but the literature is rife with alternative dates and period names – so, think flexibly!

Another problem with regional chronologies is the use of Western terms to describe East Asian phenomena. The term Neolithic (‘new stone’ age) was originally applied to Europe to distinguish the onset of polished stone-tool manufacture from the chipped stone-tool manufacture of the Palaeolithic ‘old stone’ age. Later, ‘Neolithic’ came to encompass pottery and agriculture in its definition. It is now recognized across Eurasia that “pottery precedes the emergence of farming and should be considered a hunter-gatherer innovation”.¹ ‘Ceramic hunter-gatherers’ are no longer anomalous and, as we shall see below, neither are hunter-gatherer producers of food.

East Asia defies the Western three-age classification (stone > bronze > iron) on several grounds: polished stone-tool production and ceramics existed in the Palaeolithic, and ceramics without agriculture in the Jomon and Early Chulmun. China has a Bronze

Age, as does Korea, but in both cases, iron comes into the sequence while bronzes are still in prime place of use. In China, iron appears around 800 BC in the historic period, by which time dynastic period names (such as Zhou) replace general archaeological period names (such as Bronze Age). In Korea, however, the Late Bronze Age (when this designation is used) overlaps with the Early Iron Age, the two running concurrently for the latter centuries BC. Then the Late Iron Age overlaps with the Samhan period, a historical designation for the first centuries AD. All this is unnecessarily complicated and needs refining. In Japan, bronze and iron were introduced from the continent within a short time of each other, around 300 BC during the Yayoi period. The Yayoi, originally a ceramic designation, is now an agricultural designation, so Japan has no Neolithic, Bronze or Iron Age comparable to the West. The mismatch of Western terms with the East Asian sequence can cause much confusion, but it particularly highlights the fact that cultures did not develop linearly through the Thomsen sequence everywhere in the world.²

With or without writing?

Another classification concerns the differences between prehistoric, protohistoric and historic periods. Prehistoric archaeology is concerned with periods for which there are no written records; all of our interpretations are drawn from the material record, be it artifactual or environmental in nature. For societies illuminated by texts, there are basically two kinds of written records: documents that have been excavated or retrieved from archaeological sites, and transmitted texts that have been handed down through the generations. The ways these are used to inform on past societies are variable, and distinctions are hard to make. However, in general, societies that are written about by other peoples in transmitted texts but which lack their own written documents are treated as protohistoric; those with transmitted texts are treated as historic.

Prehistoric archaeology

The Palaeolithic is the earliest prehistoric division, starting on the China Mainland at 1.66 million years ago but not until about 40,000 years ago in the Japanese Islands – as populations made their way eastward (Chapter 3). Each of these areas has supplied different kinds of data for our investigation. For example, most fossil remains are from the China Mainland, enabling research on the evolution of our ancestral species (*Homo erectus*) and the appearance of our modern form (*Homo sapiens*) (Chapter 4). Or in another example, the main

artifacts of the Early Palaeolithic period are rough core-and-flake tools,^v mainly known from the China Mainland. However, Late Palaeolithic stone tools, focusing on blades, are primarily known and researched in Japan (Chapter 4).

Previously, the Palaeolithic (archaeological) period was concomitant with the Pleistocene (geological) period, but new discoveries have revealed several artifact types once thought not to occur until the Neolithic but now dating back into the Pleistocene – including the earliest ceramics in the world (Chapter 4). Moreover, in the period designated as the Neolithic on the China Mainland, the major attribute of Neolithic society – agriculture – is recognized to have taken a long time to establish (Chapter 5). Previously a sharp distinction was drawn between the early agricultural societies of the Mainland and the hunter-gatherers of the Peninsulæ.^{vi} Now the cultures between 15,000 and 5000 BC are seen to have focused on broad spectrum hunting and gathering with an increasing emphasis on plant foods. The distinguishing factor was that the Mainlanders chose plants that were eminently domesticable, while the Jomon peoples in the Japanese Islands chose plants that did not translate into intensifiable crops.

Traditionally for prehistoric periods in East Asia, either lithics or ceramics serve as the basis for determining relative chronologies, first of sites and then of cultures. There has been a tendency in both China and Japan to divide the post-glacial landscape into ‘cultures’ defined first and foremost by pottery types named after a ‘type site’ (see Tables 1.1 and 1.6 below). Chronologies based on the succession of ceramic types were later filled out and refined with reference to other artifacts, though there are splitters and lumpers so that cultural nomenclature is quite variable. Such ceramic ‘cultures’ have then graduated to ‘phase’ or ‘period’ status (Table 1.3); for example, the Dawenkou culture is also known as the Dawenkou period, but in fact this temporal designation only applies to the area of Dawenkou culture along China’s east coast, and the Yangshao culture/period applies contemporaneously to the Neolithic cultures inland. Thus, it is important to distinguish between pottery, site, culture, and time period – all of which might bear the same name.

Protohistoric archaeology

The concept of ‘protohistory’ is little known and even less understood. But there is a great divide between researching prehistoric societies

^v Previously called ‘pebble tools’ or ‘chopper/chopping tools’.

^{vi} Chapters 5 and 6 in CKJ.

for which no written records exist at all, and researching societies about which some form of history is written. The latter may take the form of limited inscriptions and fragmentary documents created within the society itself, but more usually ‘protohistoric’ refers to societies that are discussed in the records of fully historic societies. Either way, societies covered only tangentially by written records are termed ‘protohistoric’, and very often, they incorporate one of the most important social transformations: state formation.

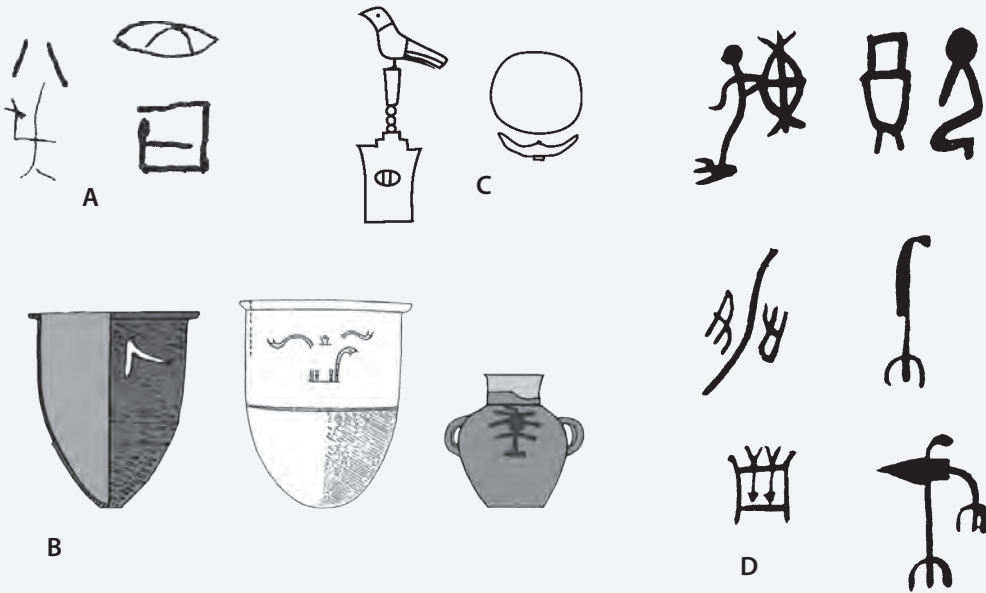
In societies that have developed their own script, such as the Shang of the China Mainland, the advent of writing marks a tremendous watershed in their *modus operandi* as well as in the archaeologists’ role in elucidating it (BOX 1.1). To be able to draw on the records of the people themselves not only gives us insight into how they thought, but also provides us with innumerable details not recoverable through the excavation of decayed and incomplete material remains. Nevertheless, in the case of Shang, these records are extremely limited – consisting only of inscriptions on oracle bones and bronzes, both elite objects. In the Zhou period, bronzes and texts on bamboo and wooden slips are similar in providing windows into the elite mindset. However, many transmitted texts are known for the later Zhou period, so that only Shang and Early Zhou periods are considered here to be ‘protohistoric’ (Chapter 9).

For societies discussed by others in transmitted texts, we must remember that we are seeing those societies through alien eyes, subject to the interests and biases of the texts’ authors. This is especially important in East Asia, where the Chinese dynastic records written from the Han period onward discuss events and peoples in all of the surrounding cultures from the northeast through the Korean Peninsula and Japanese Islands to the southern continent. Thus, the Pen/Insular Samhan and Yayoi peoples are protohistoric, with much ethnographic information recorded about them in the Han and Wei Dynasty chronicles (Chapter 13).

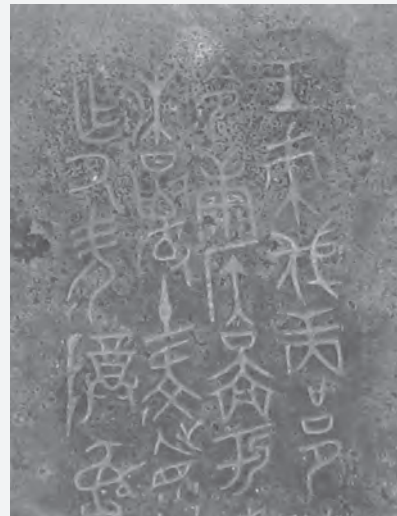
Finally, once societies become fully historical with written histories, these are often extended backward in time to document early peoples and reigns, mixing myth, legend and fact. It is a burdensome task to sort out the realities behind these records of earlier times. Particular cases are the Xia Dynasty of China (Chapter 9), the Kofun period of Japan and the Three Kingdoms period of Korea (Chapter 14) – all of which have retrospective histories written about them and are therefore ‘protohistoric’.

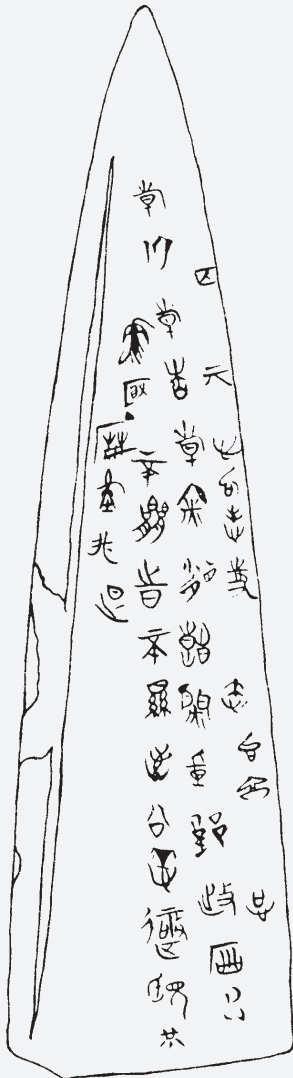
BOX 1.1 Archaeological inscriptions and the development of writing

Individual marks and signs incised on artifacts on the China Mainland now date back to the 7m BC in the Early Neolithic (A), constituting the earliest stage of writing in East Asia – though their meanings are still unknown. In the Middle Neolithic, conventionally used signs appear on Yangshao pottery over a wide area, while in the Late Neolithic, pictorial symbols were widely used on East Coast ceramics (B) and jades (C). The latter symbols might presage the emblems of different elite Shang clans or occupational groups (D).

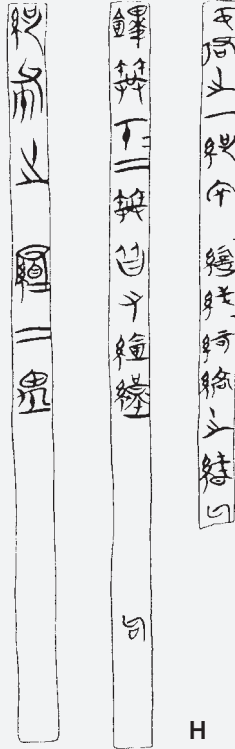


Full grammatical language is attested on Late Shang oracle bones as divinations (E) and on Late Shang / Early Zhou bronzes as dedications (F). In the Zhou period, bronze inscriptions become more narrative, while oracle bones decline in use.





G



H

Inscribed stones are known from the Middle Zhou onward (G) while in the Late Zhou and Han periods, inked inscriptions on bamboo or wooden slips (H) form the major body of archaeological writing. Manuscripts on silk have also been recovered from Late Zhou and Han tombs.

The oracle bone glyph 冊 is thought to indicate bound wooden slips, suggesting that such objects were in use far earlier than when they first appear archaeologically in the Late Zhou period.

From Shang onward, there was systematic development of the Chinese script, making these early documents decipherable. The sequence below illustrates four characters, the top row for 'moon', the second row for 'person', third row for 'eye' and fourth row for 'mountain'. The 'seal script' occurred in the Late Zhou and Qin Dynasties, while modern-style characters emerged in the Han Dynasty (I).

Characters on oracle bones and bronze inscriptions were highly variable, making reading these a very specialized skill.

oracle bones	bronze script	seal script	Han official

Historic archaeology

Once societies devise or adopt a script and write their own histories, there is yet another problem involved: that of the manipulation of fact for ideological purposes. Although the compilers of the early Chinese dynastic records are known for their interest in ethnographic information on peripheral peoples, the presentation of their own histories may not tell the full story – through conscious omission, manipulation or simple bias. Transmitted texts also have specific interpretational problems deriving from different editions, copying errors and the like.

Sometimes both transmitted texts and archaeological documents cover the same period, such as the bamboo or wooden tablets recovered from the historic periods of Late Zhou (Chapter 10) or Han (Chapter 12) sites in tombs or arid regions or from waterlogged Pen/Insular sites from the 7th to 8th centuries. The archaeological documents tend to be more intimately concerned with the task at hand and less concerned with presentation, so they may help us notice omissions and biases in the transmitted texts.

The major transmitted texts of the Zhou period are the Early Zhou *Yijing* (*I Ching*, Book of Changes), *Shangshu* (Book of Documents), and *Shijing* (Book of Poetry); the Middle and Late Zhou *Chunqiu* (Spring and Autumn Annals), *Guoyu* (State Discourses), *Yili* (Book of Etiquette), *Lunyu* (Confucian Analects), *Zuo zhuan* (Zuo Chronicle), *Chuci* (Elegies of Chu), and the writings of various philosophers. These were all written in the context of competing states and shed light on the 1m BC.

Compilation of court histories began in the Han period. Two of the earliest were the *Shiji* (Records of the Grand Historiographer), which contains a retrospective history of the Zhou period, and the *Hanshu* (History of the Former Han Dynasty). Among the works of the early 1m AD, the *Houhanshu* (History of Later Han) and *Sanguozhi* (Chronicles of the Three Kingdoms) are of great significance to East Asian archaeology as a whole, for although Han-period society on the China Mainland was fully historical, its neighbors remained without writing systems until approximately the 4c AD. Intentional ethnographic reconnaissance by embassies of the Han court, however, garnered much information about these societies, which was recorded in the dynastic histories. The *Sanguozhi* also contains much information about the Pen/Insular peoples in the section on the Wei Dynasty, referred to here as the *Weizhi* (Chapter 14). The Chinese written perspective on other East Asian cultures and peoples is then complementary to the archaeological record of indigenous development and change.

Some time between the 4c and 6c AD, possibly in conjunction with the spread of Buddhism and Buddhist sutra texts (Chapter 15), the emerging state societies of Pen/Insular East Asia adopted the Chinese script in their court dealings. The first documents surviving in Japan are the 8c court chronicles, the *Kojiki* and *Nihon Shoki*, while the earliest written records for Korea are the *Samguk Sagi* and *Samguk Yusa*, written respectively in the 12c and 13c. All of these were compiled from earlier documents no longer extant.

Whether protohistoric or historic, archaeologies of societies covered by written records are faced with one overarching problem: integrating the diverse kinds of information offered by material culture and written records in whatever form. It is now accepted procedure to analyze these two classes of material separately and then compare them to see how they support or contradict each other. This approach avoids, one hopes, a passive use of archaeological objects simply to ‘illustrate’ what is ‘known’ from written records. Archaeological data can instead be used to ‘elaborate’ on the written records, filling in data that is absent; they can also be used to ‘challenge’ the written record, revealing omissions or misrepresentations. On the other hand, comparison of written records with archaeological data can suddenly illuminate the social background of the material culture manifest in sites and artifacts.³

East Asian cultural successions

The archaeological periods covered in this book span from 1.66 million years ago (1.66mya) to 800 AD. Within this time span, 11,600 years ago (11.6kya) marks the divide between the geological Pleistocene and Holocene periods. This divide formerly also separated the Palaeolithic and Neolithic periods – but new data are informing us that this was not as clear a separation as previously believed. Some of the most intriguing aspects of East Asian archaeology involve the transition from the Palaeolithic to Neolithic in the Terminal Pleistocene. Before arriving there, however, let us start at the beginning.

The Chinese sequence

Hundreds of Palaeolithic sites are now known from the China Mainland, and nearly 50 of these have yielded human fossils of various dates, many contestable.⁴ The earliest finds, at 1.66mya, include fossils and stone tools that can be related to the migration of *Homo erectus*, our ancestral species, from Africa across Asia into

the southern China Mainland (Chapter 3). They brought with them a simple core-and-flake stone tool technology which lasted through the Late Pleistocene. Meanwhile, the *Homo erectus* inhabitants were changing in form, with many anomalous features notable in the Middle Pleistocene (from 780kya); there is considerable controversy over whether this was due to indigenous evolution or contact with new species of people across Eurasia. By the beginning of the Late Pleistocene at 120kya, skeletal remains begin to manifest modern features, and it is highly debatable whether our own species, *Homo sapiens*, had made it to East Asia by then or later – but come they did, probably interbreeding at first with evolved forms of *Homo erectus*. The first fully modern skeletal remains have been dated to 42kya; soon thereafter, a new stone tool technology focusing on prepared core production of blades came in from the north. This marks the beginning of the Late Palaeolithic, even though Early Palaeolithic core-and-flake tools continued in most areas.

The earliest pottery in the world is now dated up to 20kya from sites on the China Mainland (Chapter 4).⁵ This marks an extraordinary development within the Last Glacial Maximum (LGM), since previously pottery-making was thought to be a Holocene, even a Neolithic, invention. With the warming of the climate after the LGM and disappearance of the megafauna that were hunted previously, a long period of experimentation began with new plant foods and the hunting of smaller animals. The millennium between 15,000 and 5000 years ago, spanning the traditional Palaeolithic and Neolithic divide, was devoted to broad-spectrum subsistence activities, where hunting and gathering contributed more to the diet than plants and animals that eventually became domesticated (Chapter 5). The domestication process itself is now recognized to have taken a few thousand years through the Early and Middle Neolithic. But by 4000 BC, people were relying on domesticated products: millet in the north, rice in the south, accompanied by dogs, chickens, pigs and water buffalo.

From 3000 BC, a cooler climate and more competition between growing populations led to the development of hierarchical societies, walled sites, conflict, and intensive ritual (Chapters 6 & 7). The elite of these Late Neolithic societies often enjoyed fine jades, exquisitely thin pedestaled and burnished blackwares, sacrificial offerings in their burials of dogs and pigs, and sometimes even human sacrifices in the foundations of their houses and compound or city walls. Some scholars assign the last 600 years of the 3m BC to a 'Longshan period', but this excludes some of the more important developments in the southern Liangzhu culture dating back into the 4m BC; thus the 'Longshan period' name will not be used below.

The Neolithic cultures of Mainland China are numerous and diverse. In the 1980s, in an attempt to systematize their information, the Mainland landscape was divided into six main regions in which mostly independent cultures succeeded each other (Table 1.1).^{vii,6} This was a revolutionary idea, completely counter to the then current understanding that all cultural development emanated out of the Central Plain. By 1986, it was hypothesized that the Mainland regions integrated into widespread interaction networks whereby the different cultures stimulated each other in further development.⁷ Nevertheless, the basis for monitoring interaction remains ceramic typology; many of the cultures are named after a type site and also lend their name to a temporal phase.^{viii} It is important to distinguish between these different meanings when using the names. In Table 1.1, some important sites are listed within each culture, but it must be remembered that these represent a tiny fraction of the information available; moreover, there are many minor cultures and other regions that are not represented, while the temporal and spatial boundaries of the named cultures are not as rigid as portrayed.

The major transitions in Mainland Neolithic cultures have been defined in terms of economic and social differentiation. These included the following:⁸

- 7000–5500 BC, population increases based on mixed economies (as presented in Chapter 5);
- 5500–4000 BC, emergence of regional economic and social systems (discussed in Chapter 6);
- 4000–1800 BC, emergence of regional polities and increased inter-community interaction (the topic of Chapter 7).

Neolithic trends toward social differentiation came to fruition with the adoption of bronze-casting on a large scale from 1800 BC (Chapter 8), leading into the Bronze Age of four-tiered territorial hierarchies, dynastic state organization, palatial lifestyles, and monumental burials. The Bronze Age incorporates a new division between the Late Neolithic and the Shang period: the Erlitou period (2000–1500 BC), witnessing the rise of the first state and the beginning of bronze-casting at 1800 BC. There is great debate as to whether the Erlitou site represents the legendary Xia Dynasty; here we will refrain from using the Xia designation and simply speak of Erlitou.

^{vii} This is the *quxi* (regional divisions) *leixing* (local phases) model developed by Su Bingqi in the early 1980s, described in Liu & Chen 2012: 16–17.

^{viii} An alternative to the ceramic culture pigeonholing is offered by M. Wagner, as discussed in Priewe 2012: 101–103.

Table 1.1 From the Neolithic into the Bronze Age

CULTURES, sites, and select contents in six regions of the China Mainland; early finds emboldened; approximate dates.

Abbreviations: H&G = hunting & gathering, Bmillet, Fmillet = broomcorn or foxtail millet (BF = both), sett. = settlement, pol. = polished; stratif = stratification, bldgs. = buildings

1.1a	Northwest	South Central	Shanghai/Hangzhou Deltas	North Central	Shandong peninsula	Manchurian Basin
BC	① Wei R. / Gansu	② Middle Yangzi	③ Lower Yangzi	④ Central Plain	⑤ Haidai (Eastern Seaboard)	⑥ Northeast (Dongbei) (west / east)
10,500						
8000		PENGTOUSHAN (8000–6400+) wild rice, burials, villages , pottery, cobble & flake tools	<i>Shangshan</i> (9400/8000–6600) wild rice, H&G, cobble & flake stone tools, pottery, village <i>Xiaohuangshan</i> (8000–5000) house, pits, cobble & flake tools	<i>Hutouliang</i> <i>Nanzhuangtou</i> (10,400–9000) pottery, grindstones, dog, flake tools, worked bone	<i>Bianbiandong</i> <i>Lijigou</i> (8500–6900) microliths, pottery, grindstones	<i>Zhuannian</i> (9300–8300) pottery, stone axes, grindstones, pit burials <i>Donghulin</i> (9000–7000) burials, ash pits, hearths, pottery, stone/bone/shell artifacts, microliths, grindstones, burials
7000	8.2kya event = Early / Mid-Holocene 6200 boundary	village ditch <i>Bashidang</i>				
6000	Late LAOGUANTAI (6000–5300) painted pottery , ungulates, dog, birds, bear, boar, Bmillet <i>Dadiwan 1</i>	Lower ZAOSHI (5900–4800) wild rice, water buffalo, cattle, polished stone tools, pig, site expansion, painted pottery	KUHUQIAO (6000–5000) wild rice, H&G, dogs, pigs, wild buffalo; polished stone tools, fine pottery, bone spades, stilted houses, dugout canoes, paddles basketry <i>Xiaohuangshan</i>	BAIJI (7000–5000) millet, H&G PEILIGANG /CISHAN/ LAOGUANTAI (6300–5100) LUJIACUN painted pottery , millet storage pits, querns, H&G <i>Jiahu</i> rice	HOULI (6200–5000) H&G, FB millet, dog, pig, houses, burials, kiln, pottery, sickles, grinding stones, rice BEXIN (5400–4300) Fmillet/(wild?) rice, H&G, pigs, dogs, chicken, cattle, buffalo, chipped & polished stone tools	XINGLONGWA (6000–4800) BFmillet, H&G deer, boar, walnuts, jade, dragon motifs , square houses <i>Xinglongwa</i> <i>Baiyinchanghan</i>
EARLY NEOLITHIC						XINLE (5500–4800) Bmillet, green onions
5000	YANGSHAO (5000–3300) pit-bldgs, pottery, millet, livestock <i>Dadiwan 2</i> (4500–2900)	TANGJIAGANG (4800–4300) rice, polished stone tools, painted pottery, paddy fields	MAJIABANG (5000–4000) red pottery, pol. stone, jades, rice, paddy fields <i>Caoxieshan</i> , <i>Chadun</i> HEMUDU (5000–3000) <i>Hemudu</i> pro-domes, rice, H&G, bone spades, advanced crafts , stilted houses <i>Tianluoshan</i>	YANGSHAO (5000–3000) / BANPO phase <i>Banpo</i> , <i>Jiangzhai</i> millets, mustard, hemp, soybean, sickles, pit-buildings, surface bldgs, livestock, painted pottery	ZHAOBAOGOU (5000–4400) digging tools, micro-blades, painted pottery, figurines (4500-) EARLY HONGSHAN Fmillet, sickle, H&G, pigs, digging tools	
4200	Abrupt climate event					

1.1b	Northwest	South Central	Shanghai/Hangzhou Deltas		North Central	Shandong peninsula	Manchurian Basin
BC	① Wei R. / Gansu	② Middle Yangtzi	③ Lower Yangtzi		④ Central Plain	⑤ Haida (Eastern Seaboard)	⑥ Northeast (Dongbei) (Liaoxi)
4000 MIDDLE NEO- LITHIC	Late YANGSHAO (3500–3200) millet expansion, site increase, painted pottery, surface houses, public buildings	DAXI (4300–3500) CHENGTOUSHAN domes, rice, millet, sickles, walls & moats, sett. increase, social ranking , jades, adv. ceramics, workshops	SONGZE/ LINGJIATAN (4000–3300) pol. stone, stone plow, domes rice, jades, social ranking , settlement differences	HEMUDU (5000–3000) rice, H&G, adv. crafts , wooden buildings	Late YANGSHAO/ MIAODIGOU I/ XUYINCUN (4000–3300) Fmillet, B?, domes. rice, soybean, sorghum, sickle, jades, surface houses, site increase, sett. differentiation, painted pottery, walled settlements , human sacrifice? , social inequality <i>Miaodigou, Xipo</i>	Early DAWENKOU (4150–3550) millets, rice, H&G, dogs, pigs, pit-blds, pol. tools, painted pottery, household production of East Coast wares, burial ceramics Middle DAWENKOU (3550–3050) jades, specialist potters, blackware ceramics, fast potter's wheel, kilns, painted pottery, social ranking	Middle/Late HONGSHAN (3500–2800) jades, social ranking, goddess temples, tomb burials <i>Fushanzhuang</i> <i>Niuheliang</i>
3300 LATE NEO- LITHIC	MAJIAYAO (3300–2800) millets, hemp, pigs, goats , cows , stone tools, painted pottery, bronze smelting	QUJIALING (3300–2600) domes, rice, sickles, site increase, adv. ceramics, textiles, sett. differentiation, 100ha site, jades, bronze?	LIANGZHU (3300–2000) Early (3300–3000) domes, rice, livestock, stone plows & sickles, jades, social stratification , black pottery <i>Yaoshan</i> Middle (3000–2600) <i>Liangzhu complex</i>	Xishan MIAODIGOU II (Latest Yangshao/ Early Longshan) (2900–2600), millet, domes, rice, soybean, sickles, ranked burials, jades, ivory	Late DAWENKOU (3050–2650) +beans new stone tools craft specialization long-distance trade jades, white ceramics <i>Yuchisi, Dantu</i>		
2800	BANSHAN (2800–2300) Bmillet MACHANG (2300–2100) Fmillet, hemp	SHUIJIAHE (2500–2000) rice, sickles, sett. increase, jades, silk, social stratif?	Late (2600–2400) <i>Sidun</i> silk, black pottery, jades Epi-Liangzhu (2400–2200)	Central LONGSHAN (Mid-Late) (2600–1900) <i>Taosi</i> , WANGWAN III millets, domes, rice, soybean, wheat , population peak, warfare, sett. differentiation, social stratification	Eastern LONGSHAN (2600–1900) Fmillet, rice, eggshell ceramics, jades, social stratification, 'city-states' late: bronze <i>Liangchengzhen</i>	XIAOHEYAN (2800–2300) millet, wheat, H&G, sickle, site decrease, decline	
2200	Mid/Late Holocene boundary 4.2kya abrupt climate event						

Continued on next page

Table 1.1 Continued

1.1c	Northwest	Southwest	Yangzi drainage	North Central*	Shandong peninsula	Manchurian Basin
BC	Gansu/Ordos	Sichuan Basin		<Wei River Valley Central Plain> <Shang core>	Haidai (Eastern Seaboard)	Northeast (Dongbei)
2200	QIJA 2200–1800/1600 ZHUKAIGOU 2000–1400	BAODUN 2700–1750	DOUJITAI, MAQIAO, Lower DIANJIANGTAI	WANGWAN III 2600–1900	YUESHI	DATUOTOU Lower XIAJIADIAN GAOTAISHAN MIAOHOUZHAN
BRONZE AGE						
1900	SIBA 1900–1500 XINDIAN 1500–1000	Early SANXINGDUI 1750–1400 Late SAXINGDUI 1400–1200		ERLITOU 1850–1550 Early SHANG Erligang 1600–1300		
1200		Early SHIERQIAO 1200–1000		Pre-dynastic ZHOU ~1046 Middle/Late SHANG Anyang 1250–1046	SHANG	

* Names in cells below are justified left, center and right to correspond with the positions of their geographical locations here.

It was at Erlitou that the casting of bronze vessels began the Shang bronze tradition. Previously, I have referred to the products from the three sites of Erlitou, Erligang, and Anyang as Early, Middle and Late Shang bronze traditions.⁹ However, Middle Shang is now applied either to a transitional phase of bronzes known from Huanbei, near Anyang,¹⁰ or to Phase II of Upper Erligang.¹¹ For simplicity's sake, I refer to finds contemporaneous with Zhengzhou (Erligang) as Early Shang and those contemporaneous with the Yinxu capital (Anyang) as Late Shang. The break between Early and Late Shang was marked by a shift in the capital area from south to north as known archaeologically.

The term 'Shang' is derived from textual sources, but never did the people refer to themselves or any other group as a 'state' – this being a modern academic designation. 'Shang' has several distinct and sometimes contradictory meanings: as the name of 1) an archaeological period, 2) a protohistoric ethnic group, 3) a particular style of bronzes, and 4) an early state. In the most simplistic descriptions of the Shang period, the Shang people are portrayed as ruling the Shang state, which is marked archaeologically by the distribution of Shang-style bronzes – except for Erlitou. As an archaeological *period*, however, the concept of a Shang *period* does not give good representation to several other regional bronze traditions. Because of this and the problem Erlitou represents, it is perhaps better to use the Bronze Age as a period, with Early BA = Erlitou + Erligang, Middle BA = Anyang, and Late BA = Early Zhou,

while still retaining the Shang style designations above. Iron appears from the beginning of Middle Zhou so that even though bronzes were still in use (as they are today), it warrants ending the Bronze Age there.

The protohistoric Zhou period traditionally begins with the overthrow of the Shang king and clan by a rival ethnic group, the Zhou (Table 1.2). This is a historically attested event, though the date is much debated; 1045 or 1046 is commonly used these days.^{ix} The lengthy Zhou period (Chapters 9, 10) is traditionally segmented by historians into Western and Eastern Zhou periods, the latter then divided into Spring & Autumn^x and Warring States periods. The distinction between Western and Eastern Zhou was a shift in location of the capital from west to east. For simplicity's sake, these three sub-periods are referred to here as Early (Western), Middle (Spring & Autumn) and Late (Warring States) Zhou. Though iron-working became prominent after 800 BC, we will not speak of a Chinese 'Iron Age'. Another significant feature of the 1m BC was the emergence of mounted nomads on the northern Zhou frontiers (Chapter 10).

With the advent of the Zhou period, numerous competing states and statelets proliferated across the north China Mainland and beyond. During Late Zhou, seven states emerged as major rivals: Qi, Qin, Yan, Qiao, Wei, Han, and Chu. The period ended with the Qin's conquest of the others in 221 BC and the proclamation of a united Qin Dynasty, whence we get our name for 'China'. The fully historic Han Dynasty soon succeeded it, continuing the centralization and bureaucratization begun by Qin (Chapter 12). Territorial and economic expansion achieved under the Han has earned it the reputation of being an 'empire'. The Han period as defined here consists of three dynasties: the Western or Former Han Dynasty and the Eastern or Later Han Dynasty, with the brief Xin Dynasty in between. Again, the distinction is a shift in the capital's location from west to east between Western and Eastern Han, while the Xin Dynasty represents a short period of usurpation of the throne by WANG Mang. For simplification I will refer to these as the Early and Late Han periods, divided by an Interregnum.

Table 1.2 Dynastic dates for China, from Shang through Tang

Additional dates can be seen in Table 0.1. There is more than one way to group the dynasties emboldened below into non-bold group names, thus variations occur in the literature. Also the beginnings and endings of dynasties are negotiable depending on what criteria are used.

Shang (ca. 1500–1046 BC)
Zhou Dynasty (1046–221 BC)
Pre-dynastic Zhou (<1046 BC)
Early Zhou period (1045–771 BC)
Middle Zhou period (771–475 BC)
Late Zhou period (475–221 BC)
Qin Dynasty (221–206 BC)
Han Dynasty (206 BC–220 AD)
Early Han (206 BC–9 AD)
Interregnum (9–23)
Late Han (25–220)
Three Kingdoms (220–280)
Wei Dynasty (220–265)
Wu Dynasty (222–280)
Shu Dynasty (221–263)
Six Dynasties (220–589)
Western Jin (265–316)
Eastern Jin (317–420)
Sixteen states, <i>of which is mentioned herein:</i>
Former Qin (351–394)
Northern & Southern courts (420–589)
<i>among which are mentioned herein:</i>
Liu Song (420–479)
Southern Qi (479–502)
Liang (502–557)
Northern (Toba) Wei (386–534)
Northern Qi (550–577)
Sui Dynasty (581–618)
Tang Dynasty (618–906)

^{ix} As opposed to 1027, used in CKJ.

^x Now often referred to in the plural, Springs and Autumns.

The fall of Han resulted in the partitioning of the China Mainland into three main states – Wei, Wu, and Shu – and many minor statelets. The traditional historic period encompassing this time of disunity and strife is the Three Kingdoms Six Dynasties. Only in the late 6th century was the region reunited under one rule, the Sui Dynasty, which then led into the florescence of Chinese culture under the Tang Dynasty (Chapter 15).

The Korean sequence

Archaeology in Korea is a relatively new discipline. Introduced by the Japanese during the period of colonial occupation (1910–1945), archaeological research did not take off among indigenous scholars until the 1970s. Although Japanese researchers reported possible Palaeolithic finds, the existence of such early material was not substantiated until 1962,¹² and there is still a question of early dating for large-tool industries. Finds for the Upper Palaeolithic after 40kya include microliths, but little is yet known about the Pleistocene–Holocene transition except that early pottery probably diffused from the Amur Basin.

During the Early Holocene, the Peninsula was occupied by groups subsisting on fish, shellfish, and plant foods such as nuts; plant cultivation was integrated into this regime after 3500 BC (Chapter 5). Because of the presence of ceramics, the period is often referred to as Neolithic; however, to differentiate the Peninsular sequence from the Mainland Neolithic, and because it is entrenched in the literature, I will retain the name ‘Chulmun’ for the period *ca.* 6000–1300 BC. Table 1.3 illustrates how various authors name and divide the Chulmun period and its successor, the Mumun period; here we will use the phases shown in gray.¹³

Several ceramic styles named after particular decorations (*-mun*) are known,¹⁴ but the period name of Chulmun comes from the dominant ‘comb-marked’ pottery. Ceramics first appeared on the eastern seaboard, possibly dispersed from the Amur region of maritime Russia,¹⁵ then spread to the southern coast. In the Middle Neolithic, comb-marked (*chulmun*) pottery spread from the northwestern Peninsula southward and became the dominant pottery form.¹⁶ 3500 BC marks a clear divide characterized thereafter by *chulmun* pottery and millet cultivation, both probably having spread from the Mainland Neolithic cultures of the Manchurian Basin.

The succeeding Mumun period (1450–340 BC)^{xi} derives its name from Plain Pottery, *mumun* meaning ‘no decoration’. Because it has replaced the nomenclature of ‘Bronze Age’, it now overlaps with the

^{xi} Adopting the chronology based on AMS dates in Bale 2011.

Table 1.3 Phases of the Chulmun and Mumun periods as used by different authors

New data on early ceramics are causing a breakdown of the standard Chulmun chronology.

BC	Choe & Bale 2002 & this volume	Norton 2007	Lee, G-A 2011	Choy, An & Richards 2012	Shin, Rhee & Aikens 2013
period/ phase	Chulmun	Chulmun	Chulmun	Chulmun	Neolithic (pottery types)
Incipient	8000–6000	8000–6000		6000–5000	>6000 Gosan-ri
Early	6000–3500	6000–3500	5500–3500	5000–3500	6000–4000 <i>yunggimun</i>
Middle	3500–2000	3500–2200	3500–2000	3500–2500	4000–2500 <i>chulmun</i>
Late	2000–1500/1000	2200–1500	2000–1400	2500–1500	2500–1300 <i>chulmun</i>

The Mumun chronology (below) is presented first as AMS ¹⁴C dates and then as schemes interpreted by different scholars who accept the AMS dates. The 1m BC used to be divided into the Early and Late Bronze ages, with the Late Bronze Age overlapping with the Early Iron Age (the CKJ dating below). Using the Mumun period designation instead of the Bronze Age, it is now the Late Mumun period that may overlap with the Iron Age, depending on the chosen ending and starting dates respectively. Dates for the late 1m BC are still very unclear, even though the general trajectory of development is fairly well known, incorporating a time lag between the northern Peninsula near the Manchurian Basin and the southern Peninsular coast.

AMS ¹⁴ C	1450–700 BC	700–500 BC	500–340 BC	340 BC–	
CKJ	Mumun/ Plain Pottery	700–400 Early Bronze Age (BA)	400 BC – Late BA/ Early Iron Age (IA)	400 BC – 0 AD Late BA/ Early Iron Age	0–300 AD Late IA= Samhan
Bale 2014	Early Mumun 1450–850	Middle Mumun ~850–550	Late Mumun 550–300	Early Iron Age 300 BC–	
Onuki 2014	Early Mumun= Early Bronze Age	Middle Mumun = Late Bronze Age	from 5c: 1st ½ of Late Mumun = Early IA to 200	200 BC: 2nd ½ of Late Mumun = Late IA	
This volume	1450–850 Early Mumun	850–500 Middle Mumun	500–200 Late Mumun/Early IA	200 BC – Samhan/ Early IA	Late IA = Samhan

Early Iron Age. Rice comes into cultivation at this time, and bronzes appear on the Peninsula around 700 BC from the Manchurian Basin (Chapter 11). There is a nominal division at around 340 BC between early Manchurian-type bronzes and later local innovations.

In the 5c BC, cast-iron objects began to dribble into the Peninsula from the iron-producing Zhou state of Yan in the northeast; then bloomery iron production began on the Peninsula in the last centuries

Table 1.4 Three Kingdoms and Kaya dates

	Samhan origins	<i>Samguk Sagi</i> dates	state formation
Koguryo		37 BC–668 AD	3c AD
Paekche	Boji	18 BC–660 AD	3c AD
Silla	Saro	57 BC–668 AD	4c AD
United Silla		668–935	
Kaya	Kuya		
Pon-Kaya (Kumgwan)		3c–532	
Tae-Kaya		5c–562	5c AD?

BC. In 108 BC, Han Dynasty troops from the Mainland conquered the northern Peninsula, establishing the commandery of Lelang, and integrated that region and the eastern Manchurian Basin into the Han empire's system of military commanderies (Chapter 13). Such commanderies were newly created Han administrative units that co-existed with older units often referred to as 'principalities'. Archaeologically, the protohistoric commandery period on the Peninsula (108 BC–313 AD) is often referred to as the Lelang period, while the first three centuries AD are also called the Proto-Three Kingdoms period or the Samhan period. Since the appellation Proto-Three Kingdoms is somewhat teleological, Samhan or its equivalent, the Late Iron Age, will be used here.

The succeeding period from 300 to 668 AD is called the Three Kingdoms period^{xii} due to the Peninsula being divided into three emerging states: Koguryo, Paekche, and Silla. During this time the southernmost coast housed a series of chiefdoms all bearing the name 'Kaya' (Pon-Kaya, Tae-Kaya, etc.). The Three Kingdoms period was characterized by monumental mounded tomb burials for the rulers (Chapter 14). Traditional Korean histories project the king lists for these polities back to the 1st century BC, and indeed Koguryo did exist as a chiefdom during the Lelang period; however, the polities that developed after the collapse of Lelang in 313 are viewed as the first Korean states (Table 1.4).

By 668, Silla had conquered its rivals and united the Korean Peninsula under one rule. United Silla (668–935) adopted several administrative units and techniques from Tang Dynasty China; though fully historic in its own age, no documents other than wooden tablets survive from this period (Chapter 15).

^{xii} Not to be confused with the Three Kingdoms Six Dynasties period (220–581 AD) on the China Mainland.

The Japanese sequence

Because the boundaries of archaeological periods in Japan are constantly in flux from new research, various and conflicting dates are found in the literature. Most importantly, claims for the early occupation of Japan during the Middle Palaeolithic have now been disavowed, as a dating hoax was revealed in 2000. It is now thought that most Palaeolithic sites in Japan belong to the Upper Palaeolithic, from around 40,000 years ago (Chapter 4). The Upper Palaeolithic (UP) is divided into Early (EUP) and Late (LUP) by the marker tephra Aira-Tanzawa (AT-tephra), which erupted from the Aira caldera about 29,000 years ago.¹⁷ This eruption had devastating effects on life in the archipelago, and changes in tool technology over this boundary may indicate recolonization of the western archipelago. Microblade technology appeared about 17,000 years ago¹⁸ and possibly relates to the initial colonization of the Americas from Siberia. Ceramics appeared soon thereafter and became widespread in the Early Holocene.

The Jomon period is divided into six phases (Table 1.5), with Initial Jomon spanning the Pleistocene/Holocene divide at 9600 BC. Other phase dates have correspondingly moved a bit earlier. Since the Jomon extended over many geographical regions, cultural developments varied over the landscape, so the divisions of the Jomon phases vary accordingly. The Jomon period was a long one, of lifeways based mainly on hunting, gathering and fishing, with subordinate use of plant foods, including some domesticated species. A sedentary rather than mobile lifestyle allowed the manufacture and use of ceramics on a large scale. The many varieties of pottery (Table 1.6) and the highly dissected nature of the Japanese landscape suggest regionally delimited social groupings; thus we should acknowledge several Jomon ‘cultures’ as well as many Jomon languages. Because this period is so long and Jomon people lived in such varying ecological and social environments, it is virtually impossible to encapsulate all of its aspects in a work such as this. Discussion has therefore split up the Jomon into thematic parcels: Jomon subsistence

Table 1.5 Dates of Jomon phases based on calibrated AMS ¹⁴C dates

The phase dates below derive from more than 2000 AMS ¹⁴C datings throughout the archipelago. Northwestern and northeastern Japan are distinguished by the early arrival of rice agriculture in the west, leading into the Yayoi period after 970 BC, and by the time lag of rice technology diffusion through Honshu by 350 BC. Jomon lifeways survived in Hokkaido but entered a new phase with Satsumon pottery from ca. 700 AD. Note that Incipient Jomon began in the Pleistocene, but this scheme does not include the very early finds of pottery before 15kya (13,350 BC); these are assigned to the Palaeolithic.

Jomon phase	calibrated dates BP	calibrated dates BC
Incipient	15,000–12,500	13,350–10,550
Initial (Earliest)	12,500–7000	10,550–5050
Early	7000–5470	5050–3520
Middle	5470–4420	3520–2470
Late	4420–3200	2470–1250
Final (Latest)	3200–2920	1250–970 (SW Japan)
	3200–2350	1250–400 (NE Japan)
Epi- (Zoku-) Jomon		340 BC–700 AD (Hokkaido)

is discussed in Chapter 5, the Middle Jomon exchange network in Chapter 6, and the adoption (or not) of agriculture in Chapter 11.

Soon after 1000 BC, wet rice technology was adopted from the continent, heralding the start of the Yayoi period (see Chapter 11). The Yayoi are defined as agriculturalists, and for several hundred years, peoples who adopted farming in the western Japanese Islands co-existed with peoples continuing Jomon lifeways in the northeast. Ironically, the word Yayoi derives from a place-name in Tokyo where the pottery characteristic of this period was first found and identified in the late 1800s, but this ceramic formally dates to ca. 300 BC. Bronze was added to the Yayoi repertoire about this time, and from Middle Yayoi (200–0 BC) the Insular societies came into contact with the Han Dynasty and were documented in Han court chronicles (Chapter 13). Rich grave goods of Chinese bronzes in Kyushu attest to interaction with the China Mainland at this time. In the Late Yayoi period, chiefdoms probably emerged, marked by new mounded burial types of different shapes between regions (Chapter 14). This political heterogeneity was superseded in the Early Kofun period by the spread of a homogeneous burial style consisting of keyhole-shaped mounded tombs (Table 1.7).

The advent of monumental tomb construction marks the beginning of class society, as tomb size increased in the 3rd century from <100m to as much as 280m in length. The Kofun period (250–710 AD) witnessed the formation of the first Japanese state, Yamato, and the emergence of court society; however, the road was not straight. Shifts in capitals, regimes, continental partners, and internal character define three phases in this trajectory, with Chinese influence predominant in Early Kofun (Chapter 13) and interaction with the Peninsular societies dominant in Middle and Late Kofun (Chapter 14). Writing and Buddhism were adopted from the continent in the 5–6c, while Chinese-style temple and palace architecture revolutionized elite settlement (Chapter 15). The succeeding Nara period (710–794 AD) began with the move to a new gridded city and the submission of the first histories to the Nara Court, the *Kojiki* and *Nihon Shoki* chronicles. These documents extend back into Late Yayoi and Kofun; together with the Chinese court histories, they make these periods protohistoric in nature.

Yayoi		Kofun	
Initial (Earliest)	1000–800 BC	Early	250–400 AD
Early	800–450 BC	Middle	400–500 AD
Middle	450 BC–50 AD	Late	500–710 AD
Late	50–250 AD	(Asuka)	552–710 AD
		(Ritsuryo)	645–mid-10c

Table 1.7 Yayoi–Kofun period divisions

Further reading: overviews of national archaeologies

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Chapter 2

Archaeological Organization

The discipline of archaeology as practiced today in East Asia is essentially an import from the West. Yet each country into which it was introduced had its own traditions of antiquarianism, which bequeathed a whole set of local outlooks and problems to the developing discipline (see Appendix D). In the post-war era, most archaeological activity has been conducted under the auspices of modern state governments, giving the discipline a function in the growth of nationalism in the region. An uneasy relationship between the state and academe has emerged in the last 20 years, even as the discipline of archaeology opens up to international cooperative endeavors.

Most of the interpretations formulated in this book derive from university research, whether based on data from rescue or from research excavations. Since the former provide most of the data, and since governments do support some excellent research institutes, I shall begin by describing government archaeological organization before moving on to the major developments in academic archaeology during the last quarter-century.

Archaeology as a government endeavor

In East Asia today, archaeological excavation is primarily a government concern; universities are involved at a low level, and private companies are few and far between. Most data being generated through excavation are subject to the time, budget, and space restrictions of rescue archaeology. This means that locations of digs are generally determined not by specific research problems but by where construction projects are planned. The degree of university involvement in rescue archaeology varies from country to country. In China and Korea, university teams can be called out to large projects – such as for recent dam-site excavations – when needed. In Japan, however, universities boycotted rescue excavations in the early 1970s because increasing governmental demands for their participation left insufficient time to fulfill their teaching and academic commitments (including non-rescue archaeological excavation). This boycott led to

the complete separation of rescue and research excavation activity in Japan, with the government developing a huge bureaucracy of public archaeologists.¹ In all East Asian countries, academic excavations tend to be small in scale with little recourse to public funding.

The structure of government archaeology is similar in all East Asian countries, since Japan's early organizational framework served as a model during her colonial period in the first half of the last century (on the Korean Peninsula, in Taiwan, and in the Manchurian Basin). The seminal unit in Japan was the Commission for the Protection of Cultural Properties, which operated under the Ministry of Educationⁱ at the national level with branches in the prefectural governments of Japan. This hierarchy was duplicated in China and Korea, and it is through this government administrative structure that current cultural properties laws are administered. These government offices are supplemented by state-run research institutes and museums, any of which might field teams of archaeologists to deal with sites threatened by development.

Separate from the state hierarchy of cultural properties offices are the universities, both state and private. Some university museums cooperate in excavation projects; others merely serve as repositories for excavated materials. Furthermore, beginning in the 1990s, private archaeological companies began to appear, specializing in excavation or analyses. Japan has seen more of these developments than elsewhere, but with the decline in infrastructural expenditure in Japan during the "lost decade", archaeologists have struggled to make a living in either the state or the private sector.

Given the "near universality of a relationship between nationalist politics and the practice of archaeology",² abuses do arise in support of particular political agendas. These will not be dwelt on here, but certainly we must be aware of how archaeological results are tied to both the national environment and the investigator's personal position therein.

It should be mentioned that subsequent to the post-war communist takeovers in North Korea and China, a specific Western interpretational framework – that of Marxist evolutionary theory – was imported. According to this theoretical framework, societies around the world move through specific developmental stages: matriarchal clan society, patriarchal society, slave society, feudalism, capitalism, and then finally, communism. Archaeological remains have been (in China) and still are (in North Korea)³ generally assigned to these immutable stages, but usually only as loose alternatives for

ⁱ Now called MEXT, the Ministry of Education, Culture, Sports, Science and Technology (Monbu Kagakusho).

period names, without heavy theorizing or excessive interpretation.⁴ Thus it has been said that efforts at least in China to apply historical materialism to archaeological data have resulted only in “indifferent success”⁵ and indeed have now been largely discarded. In Japan, however, Marxist vocabulary and concepts are still a mainstay in discussions of settlement archaeology and the communities settlement sites represent.⁶

Japan

The Agency for Cultural Affairs, established in 1968 as the successor to the post-war Commission for the Protection of Cultural Properties, is the umbrella under which state archaeological activities (and many other cultural activities) are managed.⁷ Archaeological materials are considered ‘buried cultural properties’, which are treated differently from other ‘tangible cultural properties’. As of 2012, over 465,021 locations throughout the country had yielded archaeological materials, though only 403,057 survive; another 9000 are added each year. The types of remains can be divided into categories by period and by type, e.g., shellmounds, tombs, settlement sites, and temples, and figures are published on expenditure every financial year.

In the post-war period, each prefecture installed its own archaeological personnel to deal with the rising numbers of sites being discovered through urban and infrastructure projects.⁸ These staff members (not always defined as archaeologists) were employed by the prefectural Boards of Education (alternatively referred to as BoE, Kyoiku Inkai, or Kyo-i), and later, BOE-associated foundations: the Buried Cultural Properties Research Institutes (Maizo Bunkazai Kenkyujo – Maibun for short). Many of the state publications of site reports bear the BoE imprint. This government-led archaeology is now referred to as Archaeological Heritage Management (AHM).⁹

From the 1970s, rescue archaeology increased to the extent that Japan has the largest archaeological bureaucracy in the world, as municipalities and townships added their own teams. The numbers have diminished somewhat: between 2008 and 2013, public (i.e., government) archaeologists decreased from 6,255 to 5,961. Nevertheless, for a country the size of California in which flat land supporting habitation accounts for only 14% of the land area, these numbers are quite astounding. Public archaeologists have the opportunity to be trained in new technologies at the Center for Archaeological Operations (CAO), created in 1974 at the Nara Institute for Cultural Properties (Nabunken for short). Moreover, the Agency for Cultural Affairs published a three-volume set titled *Guide to excavation* (in Japanese) that gives instructions for all phases of

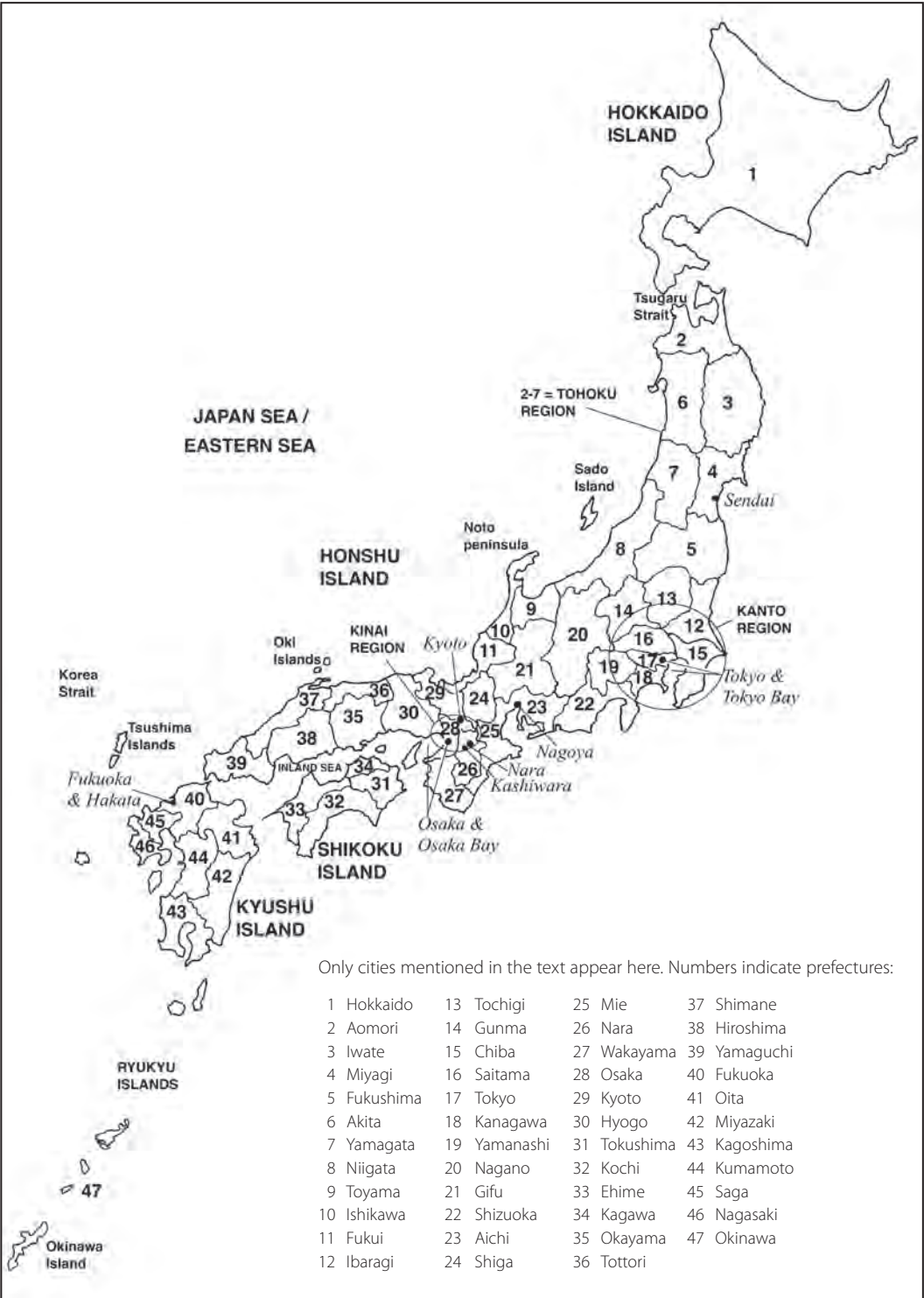


Figure 2.1 Modern Japanese prefectures and geographical features

excavation – from the laws and economics of planning an excavation to documenting, analyzing, and preserving excavated remains.¹⁰ Despite the existence of excellent government research institutes (e.g., Nabunken and Kashikoken – the Kashihara Archaeological Institute Kashihara City), ‘research’ is not expected of public archaeologists, and many have felt that they were mere ‘diggers’ in the heyday of rescue archaeology; this feeling is reinforced by a current tendency to call them “specialists in charge of buried cultural properties” rather than archaeologists *per se*.¹¹

Archaeology in Japan is an extension of history; thus, archaeological efforts are directed toward recovering the history of a locale, be it a city, township, county, or prefecture as determined by the institution involved. Almost everything is reported only in the Japanese language, which makes those efforts doubly inward-looking. One public archaeologist recently commented that he was beginning to feel like a “frog in a well” – unable to see or interact outward.¹²

One reason for the very active archaeological scene in Japan is the 1899 Lost Property Law, incorporated as Article 59 of the 1954 Law for the Protection of Cultural Properties, requiring that anything found in the ground be returned to its original owners. A good example occurred in the 1970s, when a lacquered trunk bearing a daimyo family crest was unearthed and returned to the daimyo’s descendants. When applied to archaeological objects whose original owners cannot be traced, the objects become wards of the state for the benefit of the populace as a whole. The application of this law to both public and private land means that every act of digging in the ground must have a valid permit and be archaeologically monitored. In 2012, a massive 55,152 applications for excavation permits were processed; only 434 of those were for academic excavations.¹³

The law has one further ramification: archaeology in Japan has arguably always been about ‘the public’,¹⁴ who ostensibly own the past and for whom both government and university archaeologists work to enlighten.ⁱⁱ In return, the general populace responds with great interest in anything archaeological, attending seminars, special conferences, site ‘open days’ and museum exhibitions in droves. Initiatives to have citizens, including school children, participate in excavations is one new way to make archaeology ‘relevant’ to peoples’ lives today.¹⁵ An important aspect of any excavation, government or academic, is the Open Day when the site is opened to the general public and guided tours and explanations are provided.

ⁱⁱ See the discussion on the meaning of ‘public archaeology’ in Okamura & Matsuda (eds.) 2011.

Figure 2.2 Modern provinces and cities on the Korean Peninsula

The Demilitarized Zone (DMZ) separates North Korea (formally The Democratic People's Republic of Korea) and South Korea (formally The Republic of Korea). Note that some provinces occur in north-south pairs, and two provinces are split between North and South Korea. The six named rivers are important geographical locators. Cities mentioned in the text appear here. The Yongnam region consists of North and South Kyongsan provinces.



Korea

Archaeology in the Korea is split between universities and government facilities, but unlike in Japan, these institutions usually work together. In South Korea between 1991 and 2006, the number of rescue excavations rose from 28% to 88% of all excavations carried out, with purely academic excavations accounting for barely 10% of projects. In comparison with Japan, however, the figures are miniscule;ⁱⁱⁱ for example, in 2006, just over 1300 excavations were conducted in South Korea compared to 48,360 permits for digging the ground in Japan.¹⁶ These figures, of course, do not have areal components for comparison, and the fact that some permits are issued in Japan for construction with watching briefs but no excavation skews the comparators.

The responsible government office in South Korea is the Cultural Heritage Administration of Korea (CHA),¹⁷ now operative under the Ministry of Culture, Sports and Tourism, MCST. As with the Agency for Cultural Affairs in Japan, permission must be sought from CHA to excavate underground or underwater cultural properties. Within the CHA, the foremost institution responsible for archaeological work is the National Research Institute for Cultural Heritage (NRICH),¹⁸ established in 1975 and now located in Taejon City; since then, five affiliated institutes have opened in provincial cities. A separate institute, The National Research Institute of Maritime Cultural Heritage (formerly the National Maritime Museum in Mokpo City), directly under the CHA, is in charge of shipwreck archaeology including the two amazing discoveries at Wando and Sinan,¹⁹ and later discoveries such as Biando.²⁰

As in Japan, much archaeological work is carried out by foundations,²¹ established by local governments with funding from developers. The first such foundation, the Yongnam Institute of Cultural Properties, was created in 1994 with most of its members drawn from the Yongnam Archaeological Society; first a corporation, it now operates as a non-profit foundation. By 2012, there were 57 foundations – the southeastern Yongnam region having the most – which belonged to the Korea Cultural Properties Investigation and Research Institute Association (KCPIA). Altogether, 126 units in nine different categories are licensed by the CHA to conduct excavations with their own crews.²² The rise of excavation foundations has actually drawn away staff from university archaeology departments and museums, leaving them understaffed with unfinished research projects.²³

ⁱⁱⁱ These, however, do not take into consideration different areal coverage such as excavating a house lot or a dam site.

For any excavation, a management committee overseen by CHA is established that includes archaeological advisors from the academic community and local administrators.²⁴ Excavations are followed by On-Site Explanatory Meetings where briefing notes on the features and artifacts discovered are distributed to attending members of the region's museums and research institutes as well as the construction companies.²⁵ It is the KCPIA rather than the central government that publishes a journal dealing with fieldwork methodologies and case studies (in Korean): *Journal of Field Archaeology*, renamed from the *Journal for Excavation Case Study*.²⁶

The National Museum of Korea in Seoul was established in 1945, taking over the former Choson Government-General Museum of the Japanese colonial government; it contains the materials excavated during the colonial period from both the northern and southern parts of the Peninsula, making it an important resource for studying North Korean archaeology while that area remains inaccessible. Between 1986 and 1996, the Museum was housed in the Government-General headquarters building, but public disapproval caused the removal of the collections and the dismantling of the building in 1996. The Museum re-opened in 2005 in a spectacular new building and grounds in southern Seoul. It is an affiliate of MCST and tops a hierarchy of 12 other national museums in provincial cities – Kyongju National Museum being one of the most important, as it is located in the ancient capital area of Silla. Many of the government museums manage personnel for archaeological work as well as act as repositories for locally excavated materials.

A new development is the opening in 2000 of a university directly under CHA, the Korean National University of Cultural Heritage in Puyo Town. Taking a cue from this, 'museum colleges' are being established by museums at all levels: government, university and private.²⁷ These 'colleges' not only provide lectures on archaeological topics but also involve tours of museum exhibits and archaeological sites. Moreover, those who complete a course of lectures may then volunteer as museum guides or do post-excavation work cataloging and curating artifacts. One of the most intensive courses is offered by the Land Museum College, established by the Korea Land Corporation (KLC, now the Korea Land and Housing Corporation).

KLC was formed in 1975 within the South Korean government to manage land use; in 1997, it opened a specialist Land & Housing Museum in Songnam City dealing with materials from prehistory to the present. In 2004, KLC sponsored a joint archaeological project between the two Koreas at the Kaesong Industrial Complex in Kaesong City (the old capital of the Koryo Dynasty) just north of the DMZ. Funded by the KLC, the developer brought together more

than 40 archaeologists from both North and South Korea for the first cooperative project of its kind. In 2006, KLC implemented a Spatial Information Knowledge System (SPINKS) for the country based on ArcGIS software, managing 125 layers of geographic information. GIS^{iv} is being increasingly employed in siting construction projects to avoid threats to cultural resources,²⁸ with NRICH running a ‘Cultural Heritage GIS Service’.

As in 1970s Japan, development projects in South Korea, such as dams and golf courses, have required broad-scale excavations producing copious data, with excavation rates increasing exponentially from 1985.²⁹ Not all such projects go smoothly. The Nam River dam project is a case in point: despite a potential five-year jail sentence for digging without a permit, the developer barged ahead for three decades from the 1960s on, destroying a considerable number of archaeological resources while the government seemed not to be paying attention.³⁰ One good outcome of this fiasco was the establishment of better communications and higher standards in project development. Several construction projects have actually been canceled – including the Seoul-Pusan high-speed railway section due to pass through Kyongju – after reviews indicating the need for cultural properties protection.

Involvement of the populace began in 1980 with the first private Association for the Preservation of Korean Cultural Properties; renamed in 1992 as the Korea Cultural Heritage Foundation, it is now listed with UNESCO as an accredited NGO (non-governmental organization).³¹ That initiative was followed in 1985 by a government-led campaign for the protection of cultural properties, and in the 1990s by a private-sector-led campaign to protect the royal palaces of Korea. In the early 2000s, CHA formed a Citizens Policy Advisory Corps to promote volunteer activities in accordance with the law.³²

China

Two views exist about archaeology during the Cultural Revolution (1966–1976): one scholar states that “various research projects were suspended, and most of the professional archaeologists were forced to do physical labor in Henan”,³³ while another states that archaeology as a discipline “was probably the least affected subject”, and excavations, often of excellent quality, continued under the slogans “let the past serve the present” and “archaeology of the workers and farmers”.³⁴ Several important discoveries were made during this period via army activities, leading to the reinstatement of the major academic journals *Kaogu*, *Wenwu* and *Acta Archaeologica Sinica* in the early

^{iv} GIS = geographical information systems



Figure 2.3 Administrative districts of the People's Republic of China (PRC) and the Republic of China (ROC, Taiwan)

A.R. = Autonomous regions of the named ethnic group (e.g., Uyghur). Cities mentioned in the text appear here.

1970s³⁵ A State Council Opinion Concerning Protection of Cultural Relics and Books proclaimed in 1967,³⁶ however, did not prevent an enormous number of cultural properties being destroyed during the Cultural Revolution.

The incorporation of lay workers in the guise of the 'class struggle' led to a backlash among Chinese archaeologists, many of whom came to resent government direction in both project design and interpretation.³⁷ The government remains heavily involved, but the discipline has been professionalized. The State Council (highest political body) must approve all archaeological activity as specified in the Law of the People's Republic of China on the Protection of Cultural Relics, promulgated in 1982.³⁸ That law also asserts state ownership of cultural properties as set out in Articles 4 and 5.³⁹ Penalties for violating the Cultural Relics law are laid out in the Criminal Law, adopted in 1979 and amended in 1997.⁴⁰ According to the Criminal Law, 'relics' are not considered 'property', though some private property rights in cultural property are acknowledged but "severely emasculated".⁴¹

The premier institutions for archaeology in China are the Institute

of Archaeology (IA), established in 1950 and incorporated in 1977 into the then newly established Chinese Academy for Social Sciences (CASS), and the Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) in the Chinese Academy for Science (CAS); both academies are directly responsible to the State Council. IVPP, tracing its organizational history back to the Cenozoic Research Laboratory in 1929, has the authority to investigate Palaeolithic sites and has traditionally been more open to international exchange. The Institute of Archaeology has several period-specific departments beginning with the Neolithic and conducts excavations nationwide. It maintains three research stations in the cities of Xi'an, Luoyang and Anyang due to the density of ancient capital remains in those areas. Several centers internal to IA CASS have been added over the years: the Center for Scientific Archaeology, a Center for Archaeological Data and Information, a Conservation and Research Center for Cultural Heritage, and a combined Center for Frontier Archaeology & Center for Foreign Archaeology. This combined center fields three teams – in Inner Mongolia, Xinjiang Province, and Tibet – while studying the archaeology of China's border regions.

The provincial structure of archaeology,⁴² administered under the State Bureau of Cultural Relics (SBCR) in the Ministry of Culture, consists of museums and provincial archaeological institutes. The latter, since 1990, are authorized to undertake excavations and are fairly autonomous in their decisions, though they are still coordinated and partially funded by the SBCR and by developers. About 1700 archaeologists “are qualified to *lead* archaeological fieldwork” – a figure difficult to compare to the comprehensive totals for Japan; annually, permits are granted for only about 800 projects,^v 80% of which are rescue archaeology.⁴³ Universities and the national institutes must apply to the provincial institutes to work in the local areas. The regionalism that has evolved out of this devolution not only highlights the contributions of the traditional areas of the 56 recognized minorities to national history but also helps to decentralize discussions of the origins of Chinese civilization.⁴⁴

Several regions have dedicated resources to deal with special archaeological remains, for example shipwreck archaeology, begun in the 1980s. From 1989, the Guangdong Provincial Institute of Archaeology surveyed the Nanhai #1 wreck, and in 2002 it collaborated with the Guangzhou Salvage Bureau to recover and restore the ship, which now resides in the Marine Silk Road Museum along with its cargo of porcelains, metalwork and lacquerware.⁴⁵ In the western desert, the Dunhuang Research Academy and the

^v The low number is due to the law not requiring excavation for each digging operation as in Japan. See <http://www.china.org.cn/english/environment/34304.htm>

National Research Center for Conservation of Ancient Wall Paintings focus their work on the Mogao Buddhist grottoes.

The PRC government involves itself in archaeology in other ways. In preparation for the Three Gorges Dam project on the upper Yangzi River, 1087 archaeological sites were excavated, diverting two-thirds of nationwide institute archaeologists to work there.⁴⁶ The dam, constructed between 1993 and 2009, flooded 632km² of land over 660km of river course. The quarter-million artifacts recovered are still being cataloged and curated; research reports began to appear in English in 2008,⁴⁷ and already we have new views on the Ba and Shu cultures of the Sichuan Basin and on salt production in the southwest,⁴⁸ one of the most important commodities to rising states.

In 1995, the Xia Shang Zhou Chronology Project was conceived under the direction of the State Committee on Science and Technology, with the remit to clarify the dates of the Sandai.⁴⁹ The Xia Dynasty, included as the first of the Sandai (Three Periods), has been thought legendary by many scholars, but others insist that it was real and needs archaeological corroboration. To test this and work out other chronological problems, the project, extending from May 1996 to October 2000, involved 21 scholars and more than 200 participants in the disciplines of archaeology, history, palaeography, astronomy and scientific dating. The work was divided between nine research tasks and 44 major topics of investigation. A preliminary report was published in October 2000, but the final report has never been released because of the controversies the preliminary report stirred up. Criticisms included misuse of radiocarbon dating, omission of foreign scholars' original work, failure of archaeological data to prove the existence of the Xia Dynasty, misapplication of astronomical theory, and use of statements of fact instead of probabilities when data were not definite.⁵⁰ This puts us in a difficult position because the dates obtained from this project are now widely used: Xia Dynasty from 2070 to 1610 BC and the Zhou takeover of Shang at 1046 BC. We must remember that these dates were 'chosen' as the best fit;⁵¹ they and the very existence of Xia must remain approximations until debates are settled. On the back of the chronology project, a Center for the Study of Ancient Civilization was established under the auspices of the Department of Archaeology at Beijing University, the purpose being to "find the ultimate origins of Chinese civilization".⁵²

East Asian archaeology since 1990

Though much archaeology conducted locally in East Asia focuses inward on interpreting past societies and finding social and ethnic roots in prehistory, a growing number of archaeologists are interested

in Western method and theory and/or wish to contribute to solving the major problems in human history. The internationalization of East Asian archaeology is being achieved through conferences and cooperative projects. East Asian students, who once were interested in studying abroad to attain proficiency in an archaeology-related scientific discipline, are now increasingly aiming to take advantage of Western method and theory. Methods of systematic surface survey and cutting-edge conservation have led to several cooperative projects. Participation in identification of global archaeological resources through UNESCO has stimulated both heritage nationalism and international cooperation. The sections below concentrate mainly on East–West interaction rather than focusing on the resources and activities carried out in the local languages.

Science and theory

A major development in archaeological research in East Asia is the shift away from artifact typology toward scientific analysis. The initiation of systematic excavation and stratigraphic recording is often considered the start of ‘scientific archaeology’, while modern surface survey using GIS and GPS^{vi} technology is an extension of this data recovery process. Two further strands of science-oriented research are: 1) analyses using technologies of chemistry, physics and biology; and 2) theoretical approaches based on clear discussion of assumptions, hypothesis construction and testing, and using statistical methods to calculate the significance of numerical finds.

Scientific analysis of chemical and isotopic compositions of ceramic and metal artifacts was the first area to develop, following from the intense interest in artifacts – first and foremost – among all archaeological remains. This interest has matured into important conservation and restoration projects that accompany more traditional reconstructions of artifact manufacturing technologies. Experimental archaeology has had an important role in the latter. By comparison, analyses in the biological sciences have lagged behind, since ecofacts and even human skeletal materials were traditionally considered less important than artifacts. Within the last two decades, however, faunal and floral identification, bone isotope analyses for dietary information, palaeopathology, and investigations of both nuclear and mitochondrial DNA have become prominent, together with greater consideration of the environment in prehistoric living patterns.^{vii} Archaeological projects are increasingly interdisciplinary,

^{vi} GPS = global positioning system

^{vii} See Jia, P. 2011 for a history of the development and a critique of the shortcomings of ‘Environmental Archaeology’ in China.

though in-country training in several fields (such as archaeobotany and archaeozoology) is not yet well provisioned.

Theoretical studies have meant looking at the East Asian data from different perspectives that have been developed in Western archaeology, such as gender and state formation.^{53, viii} These efforts try to bring regional histories into a pan-human framework, noting what is common to other sequences and what is unique to the areas and time periods of East Asia. This has resulted in students often being more familiar with archaeological theory developed on world cultures than with developments elsewhere in East Asia that might be relevant to their arguments. While Western theory is stimulating new ideas and interpretations, it might happen that East Asian archaeology eventually reaches a stage where indigenous models can supersede Western ones;^{ix} for example, many archaeologists propose a Jade Age to replace the Late Neolithic in China – highlighting a technology of cultural importance that is not represented in other world sequences.⁵⁴

Multiple archaeologies

Several new fields have developed within East Asian archaeology, some in concert with worldwide trends, such as Music Archaeology—first introduced by Westerners and taken up with gusto particularly by Chinese researchers.⁵⁵ Also Shipwreck/Underwater/Maritime Archaeology began with the Ningbo and Quanzhou shipwrecks in China and the Sinan and Wando shipwrecks in Korea, the latter resulting in the establishment of the National Maritime Museum and the National Research Institute for Maritime Cultural Heritage in South Korea. In Japan many shipwrecks, boat cargoes, and underwater sites have been discovered between Kyushu and Okinawa.⁵⁶ Fields more specific to Japan in particular are Jishin Kokogaku (Earthquake Archaeology, in contrast to Archaeoseismology)⁵⁷ and Kazanbai Kokogaku (Tephroarchaeology).⁵⁸ Many sites around the world are affected by tephra fall; perhaps the formalization of the sub-field in Japan might result in more cross-cultural studies.

Cooperative projects

East Asia is one area of the world where foreign archaeologists are not universally welcomed with open arms. Students can generally affiliate

^{viii} See Su, B. 1999 for a personalized review of the journey through this transition, and note the different use of 'state' from that employed by Liu & Chen 2003, 2012.

^{ix} As is now happening in Japanese geology (Kasahara, J. *et al.* 2010), and as already expressed for Chinese archaeology by K.C. Chang (1986); see also Wang, A. 2000.

with research institutions and are allowed to collect data subject to excavators' consent, but established archaeologists who want to work in China, Korea, or Japan can only do so by developing relationships with colleagues in a given country and establishing joint projects that must be approved at the highest state levels.

Many large collaborative surveys and excavations have taken place in the last 25 years, especially in China. The earliest attempt to run a joint project, by K.C. Chang between Harvard and Sichuan University in 1981, was thwarted by senior archaeologist XIA Nai,⁵⁹ and foreign researchers had to wait a decade until the promulgation of the 1991 Administrative Measures of the PRC on Foreign Archaeological Work to mount projects. Chang's Sino-American Shangqiu project initiated in 1990 was one of the first to allow excavation by foreigners.⁶⁰ The numerous cooperative projects include excavation, survey and conservation activities, as sampled here:⁶¹

- Sino-American Jiangxi (PRC) origin of rice agriculture project (SAJOR)⁶²
- Chifeng International Collaborative Archaeological Research Project⁶³
- Yangtze River Civilization Project⁶⁴
- International Dunhuang Project (IDP)⁶⁵
- Systematic Regional Survey in SE Shandong⁶⁶
- Investigations into Early Shang Civilization (the Shangqiu Project)⁶⁷
- The Yiluo Project investigating settlement patterns, craft production and the rise of civilization in China⁶⁸
- The Sino-Japanese Yuanzhou Joint Excavation⁶⁹
- Projects of the German Archaeological Institute (DAI), now with a field office in Beijing since 2009⁷⁰
- Establishment of the Japan–China Friendship Environmental Protection Center and the Dunhuang Caves Cultural Relics Protection, Research and Exhibition Center
- Establishment of the Xi'an Cultural Relics Protection and Restoration Center between Italy and China
- Joint program with Japan and UNESCO to protect and conserve the Jiaohe remains in Xinjiang
- Cooperative projects in underwater archaeology between WRICP (S.Korea) and KOSUWA / ARIUA (Japan)

Joint excavation projects in Japan are rare. The 1989 Miwa Project in Nara was the first, and apparently still the only, case of a foreign team being granted an excavation permit.⁷¹ Contrary to popular thought, it is not impossible to obtain a permit, but it does require good collaborative contacts. Within the country, many foreign archaeologists who work at Japanese universities and research institutes are involved in local archaeology, joining ongoing

excavations and fieldwork for data collection. The two national institutes Nichibunken (National Research Institute for Japanese Studies) and Chikyuken (Research Institute for Humanity and Nature, RIHN) not only sponsor collaborative projects with foreign researchers but also hold occasional conferences on archaeological topics. Nevertheless, Japan is the home of the Asia-Pacific Cultural Center for UNESCO (ACCU) that has a wide geographical remit. The Nara ACCU Office for Cultural Heritage Protection Cooperation runs conferences and training sessions for regional cultural heritage protection and often fields teams for conservation and restoration work on sites such as Angkor Wat in Cambodia.

NRICH in South Korea has signed MOUs (Memoranda of Understanding) for exchanges in cultural heritage research with China, Japan, Russia, Vietnam and Mongolia.⁷² Under these auspices, annual international conferences as well as joint surveys and excavation projects have been conducted as listed on the NRICH webpage – albeit still containing few if any excavations. On the Korean Peninsula, the Franco–Korean Archaeological Mission at Kaesong (sponsored by KLC as described above) involved both Korean governments and the EFEO (École française d’Extrême-Orient) in Seoul. Results were shown in an exhibition in September 2014 at the Korean National Folklore Museum in Pyongyang – truly a great step forward in Peninsular relations.

Conferences

International conferences have been held in East Asian countries since the 1980s, often hosted by government institutions but increasingly by regional institutes or academic societies. In Japan, the two main academic associations, the Society for Archaeological Study and the Japanese Archaeological Association, hold annual and biannual conferences, respectively, open to foreign participation. In South Korea, national conferences of the Korean Archaeological Society and the Society for Ancient History of Korea as well as regional society conferences incorporate occasional foreign contributions, but the most regular interaction is between the Fukuoka Archaeological Society (in Japan) and the Yongnam Archaeological Society (for the southeastern Peninsula), who hold annual joint conferences on cross-straits matters.

In China, international conferences are big business, as conference fees support the host institution to a considerable extent. Two conferences have been documented in lavish English-language proceedings available through the Arthur M. Sackler foundation: “Chinese Archaeology Enters the Twenty-first Century”, held in 1993 to commemorate the opening of the Arthur M. Sackler Museum

of Art and Archaeology established at Beijing University, and then two decades later at the same museum, “New Frontiers in Global Archaeology: Defining China’s Ancient Traditions”.⁷³ A conference in 2011 at the Baoji Museum of Bronzes shows which way the wind is blowing:⁷⁴ it was co-sponsored by the International Center for Chinese Heritage and Archaeology at the Institute of Archaeology (University College London), Beijing University (Beijing), and the Baoji City Municipal People’s Government (Shanxi) – two universities and a city, without central state involvement. There is an element of competition inherent in such an offering, perhaps a manifestation of what has been called “regional supremacism”.⁷⁵

A significant development in 1996 was the formation of the Society for East Asian Archaeology (SEAA), which promotes academic study of all East Asian regions through the entire chronological sequence.⁷⁶ Conferences were held every four years in different countries until 2012, which marked the beginning of a two-year cycle. SEAA maintains a website of current information and activities.

Journals

This international involvement has also stimulated several initiatives to publish in English ongoing developments in national archaeologies. The National Museum of Korea began publishing *The International Journal of Korean Art and Archaeology* in 2007 (now titled the *Journal of Korean Art and Archaeology*), while NRIH publishes *The Journal of Korean Archaeology* beginning in 2006. In China, a translated selection of important articles from Mainland archaeology journals has been published annually since 2001 as *Chinese Archaeology* by the CASS Institute of Archaeology and China Social Sciences Press, now co-published with De Gruyter. A competitor, an English version of the journal *Wenwu* titled *Chinese Cultural Relics*, hit the stands in 2014 from East View Press in Minneapolis. The first issue of a new English-language journal, *Japanese Journal of Archaeology*, published in 2013 by the Japanese Archaeological Association, is part of this trend, but notably it is not a government publication like those above but one published by an academic society.

In summary, it can be seen from the above descriptions that archaeology is alive and well in East Asian countries. This cursory introduction to the field as practiced today has omitted much information – for example, about archaeology programs in East Asian universities, journals published in the local languages, and regional and academic archaeological societies. Any foreigners who want to get involved had best learn the languages to access all these

resources. There is far more to be discovered as one enters the world of East Asian archaeology.

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Chapter 3

The Earliest Inhabitants

(2,000,000–40,000 years ago)

The peopling of East Asia

The spread of human beings to all parts of the globe, including East Asia, is currently conceived of as having occurred in two major waves, referred to as Out of Africa 1 and Out of Africa 2:

Out of Africa 1 ⇒ ostensibly tracks our ancestral populations, particularly *Homo erectus* (HE), as they left East Africa and traveled eastward across Eurasia around 2mya (2 million years ago).

Out of Africa 2 ⇒ traces the spread of our modern species *Homo sapiens* (HS) from East Africa, departing sometime between 125 and 60kya (125,000 to 60,000 years ago),¹ across Eurasia and beyond, into Europe and the Americas.

Modeling these waves as single events, however, incorporates a host of unknowns, uncertainties, and disagreements, and they will doubtless prove to be oversimplifications as more data become available.

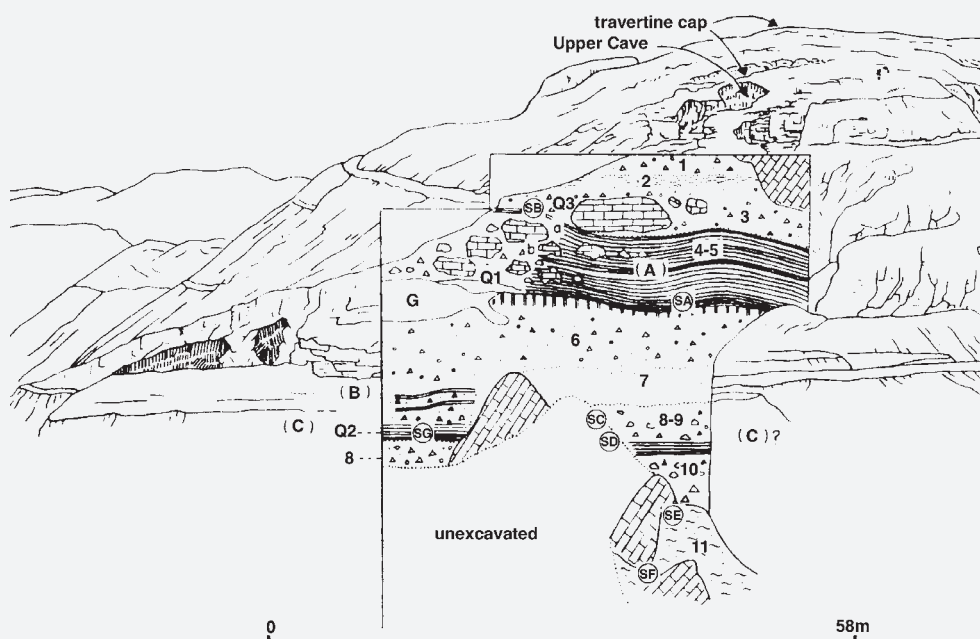
Two decades ago,² the main problem for the First Peopling of East Asia was whether HE developed from a Pan-Asian distribution of the fossil ape *Ramapithecus*, as Chinese palaeoanthropologists were wont to assert, rather than evolving in Africa. This argument has virtually disappeared,ⁱ as the locus of human evolution from our primate ancestors is now universally recognized as Africa. Instead, it is now debated *which* of our ancestors migrated out of Africa and whether HE might have developed in situ from an earlier form of *Homo* in western Asia instead. A new term, ‘hominin’, has been developed to envelop the several genera and species that might have been involved in the Out of Africa migrations, as discussed below. The term is also very useful when discussing those Palaeolithic sites that have no fossil remains to indicate which type of people occupied them. Although several variants of hominin might have made it Out of Africa, the one that colonized eastern Asia in the Early Pleistocene was most likely *Homo erectus*. However, with further speciation, the term hominin again becomes useful in the Middle Pleistocene.

ⁱ Except for the anachronous comments in Xu, P. 2005a.

BOX 3.1 Zhoukoudian sites at Longgushan, or “Dragon Bone Hill”

Despite important new finds in areas such as the Nihewan, Luonan and Bose Basins, the sites at Zhoukoudian continue to be most informative for the Palaeolithic, comprehensively yielding information on fossil populations, habitat, diet, subsistence strategies, and stone tool use. A limestone hill near the town of Zhoukoudian southwest of Beijing, Longgushan consists of at least 27 different ‘localities’ where Palaeolithic materials have been discovered and/or excavated. The site was initially identified in 1921 by Gunnar Andersson, a Swedish geologist, from quartzite fragments uncharacteristic of the limestone setting. The limestone itself provided caves in which early hominin skeletal remains were preserved through calcitic fossilization. PEI Wenchung and JIA Lanpo discovered and excavated these remains between 1927 and 1937 via the newly established Cenozoic Research Laboratory of China, now the IVPP (Institute of Vertebrate Paleontology and Paleoanthropology), Chinese Academy of Sciences (CAS).

Locality 1 (below) is shown in cross section with the later-occupied Upper Cave positioned above it. The current cave (G) is surrounded by ancient cultural layers (A/a, B/b, C/c) and loci of *Homo erectus* finds (SA-SG). The stratigraphic layers (1–11) contain quartz horizons (Q1–3). Among the scores of localities excavated at Zhoukoudian in the past 50 years, the following are especially important:





Excavated-out portion of Locality 1. Note the labels of levels going up the excavated cave wall.

- Loc. 1 (left), which yielded fossil remains of over 40 *Homo erectus* individuals, dating to more than 400kya, which were lost during World War II (but casts remain of the skulls). Deposits are 40–50m deep in a once semi-open-air cave, filled by erosion, flooding, roof/wall collapse, and carnivore bone collections spanning possibly four glacial/interglacial cycles. Overall, 88.8% of tools were made of (veined) quartz(ite); 75.2% of the toolkit were small scrapers while only 5.4% were heavy choppers.

- Loc. 4, where ‘archaic *Homo erectus*’ has been dated to 250kya.

- Loc. 15, the second richest locality at Zhoukoudian, yielding over 100,000 artifacts, extensive faunal remains, and evidence of fire, dating between >140 and 100kya.

- Upper Cave, where remains of *Homo sapiens* have been recovered together with evidence of modern human behavior, dating between 29 and 24kya.

It is worth noting that the strictly recognized form of HE is defined from the fossils found on Java in Indonesia and at Zhoukoudian in China; these are termed *Homo erectus sensu stricto* (s.s.). Locality 1 at Zhoukoudian has given the world the greatest number of HE fossils (over 40), and these are considered a ‘population’ (BOX 3.1). Other fossils of HE in Africa and elsewhere are infrequent and scattered, showing much variation over great distances and time; these are thus included in a looser category of HE s.l. (*sensu lato*). Fossils in East Asia are almost invariably found in limestone caves, such as at Zhoukoudian, because the calcium carbonate (CaCO_3) in limestone

helps preserve bone; as these formations are geographically limited, so are the chances of fossil recovery.

Arguments over the Second Peopling of East Asia previously revolved around how much genetic influence remains from HE populations in the modern Chinese population. The Eve Hypothesis,³ derived from DNA and postulating replacement of HE by *Homo sapiens sapiens* (HSS), was at odds with the morphological data of fossil skeletal remains in China showing intermediate forms. This difference has been somewhat resolved – but not yet completely – by the admission of DNA researchers that there could have been brief interbreeding at the wave front of Out of Africa 2 as discussed below.⁴ Another development, however, has confused the situation even more. It is now thought that the western species, *Homo heidelbergensis*, might account for some of the intermediate forms in China. Nonetheless, Chinese researchers still promote an indigenous and regional evolution of HE to HSS, some rejecting even the modified replacement hypothesis that allows for interbreeding.⁵ They belong to the ‘multiregionalists’⁶ who propose that the intermediate forms found in China really are transitional – with evolutionary continuity from HE to HSS; these ‘transitionals’ are referred to by them as ‘archaic *Homo sapiens*’.

Finally, researchers have developed yet another three new terms for discussing hominin speciation. The first is ‘anatomically modern humans’ (AMH), to encompass both HS and HSS without having to specify which. In this debate, it is important to recognize, second, that Neanderthals are no longer considered by some to belong to HS but are given their own species name: *Homo neanderthalensis*, the second new term. For most researchers, the major questions now revolve around identifying the timing of migrations and replacements of indigenous populations, including Neanderthals, by AMH. Finally, the term ‘early modern humans’ (EMH) seems to be a substitute for *Homo sapiens* without having to name a species, but it isn’t clear whether modern anatomy or modern behavior is being referenced – the former was not indelibly tied to the latter.⁷

The first peopling, or Out of Africa 1

What peoples?

Debate continues about when, how and by whom East Asia was colonized in the Early Pleistocene.

One of the more important changes is the redating of the Pleistocene, pushing back the beginning to *ca.* 2.6mya and the ending to 11.6kya.⁸ The Pleistocene divisions (Early, Middle and Late) do

	Pleistocene	Palaeolithic	Homo	tools
2.6mya–780kya	Early	Early	<i>Homo erectus</i>	core-and-flake
780–120kya	Middle	Early	<i>Homo erectus</i> , transitionals	core-and-flake
120kya–	Late	Early to 50kya	transitionals, <i>Homo sapiens</i> in Asia after 67kya	core-and-flake
	Late	from 50kya Late/Upper	<i>Homo sapiens sapiens</i>	core-and-flake, prepared-core technologies
	Late	Late/Upper	<i>Homo sapiens sapiens</i>	blades, microblades
–11.6kya	Terminal	Late/Upper	<i>Homo sapiens sapiens</i>	bifacial points

not exactly match the Palaeolithic divisions (Early, Late) during this time (Table 3.1). Early and Late Palaeolithic finds are listed within the Pleistocene divisions in Appendix E.

Previously, 1.8mya was offered as the beginning of the *Homo erectus* occupation of the southern China Mainland at Xihoudu (BOX 3.2), represented by stone tools but no fossils;ⁱⁱ now these finds have been redated to 1.37mya.⁹ The earliest hominin fossils ostensibly occur at Yuanmou, dated to 1.7mya, but the human nature of the teeth and the stratigraphic relationship of the teeth to the stratum dated by palaeomagnetism have both come under heavy criticism.¹⁰ Currently, a date of 1.66mya for sites in the Nihewan Basin in the north China Mainland seems to be accepted as the earliest known human colonization of East Asia.¹¹ Of course, these dates will change with new information,ⁱⁱⁱ but whatever dates are obtained, they must be examined within the general framework of species evolution and dispersal from Africa.

Humans evolved in Africa beginning with the australopithecines from 5mya, who walked upright as a matter of course and may have used stone tools; *Paranthropus*, a robust large-jawed australopithecine emerged from 3mya. The earliest *Homo* species, *Homo rudolfensis* and *Homo habilis*, overlapped with both *Australopithecus* and *Paranthropus* from 2.4mya. *Homo erectus* in Africa (often called *Homo ergaster*) dates back to 1.75–1.53mya,¹² making them contemporaneous with other *Homo* and australopithecine species in Africa until the latter died out around 1.4–1.2mya. All of the above are included in the hominin designation.^{iv}

Table 3.1 Pleistocene and Palaeolithic periodizations for East Asia

Not all species and tool types are present everywhere during these phases, and tool types cannot be equated with species types.

mya = million years ago,
kya = thousand years ago

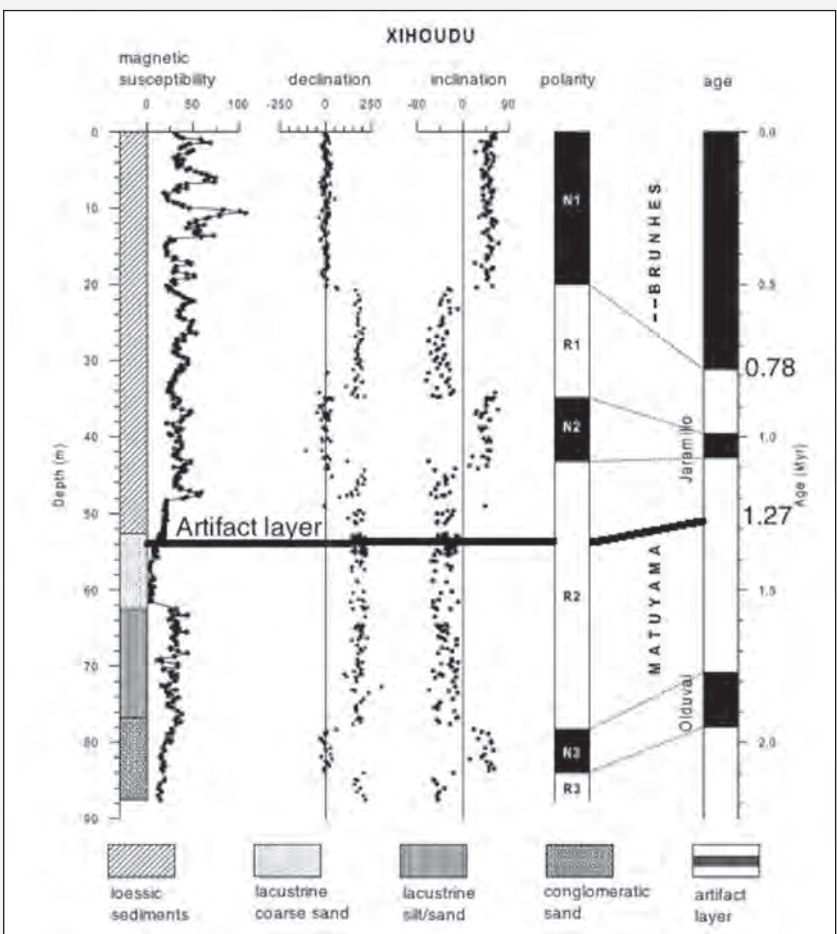
ⁱⁱ Zhu, R. *et al.* (2003) report there is still some doubt about the human manufacture of the stone tools.

ⁱⁱⁱ Such as at Renzi Cave with a date of 2.2mya, preceding the supposed evolution of HE and not yet accepted (Dennell 2009: 178).

^{iv} The term 'hominid' was redefined to include not only humans but also chimpanzees and gorillas; this led to the new term 'hominin' to refer to only humans

BOX 3.2 Xihoudu artifacts dated 1.27mya by palaeomagnetism at a lakeside environment

Reversals in the Earth's magnetic polarity through time have been recorded in stratigraphically sequential sediments. Periods of normal polarity (magnetic north at the North Pole) alternate with those of reversed polarity (magnetic north at the South Pole). The long periods are termed 'chrons'; the Brunhes (normal N) and Matuyama (reversed R) chrons are the major divisions for the Pleistocene – our current Brunhes normal chron beginning at 0.78mya. During the Matuyama (R) chron, there were short-term periods or 'subchrons' of normal polarity, the major ones being the Jaramillo and Olduvai. The dating method relies on the assumption of steady rate of sedimentation through the chron periods, so that dates of artifacts found at a particular stratigraphic position within a chron can be estimated by their relative position with the known chron and subchron boundaries. Palaeomagnetism is thus a form of relative dating, and such datings may change with more specifically artifact-associated dates.



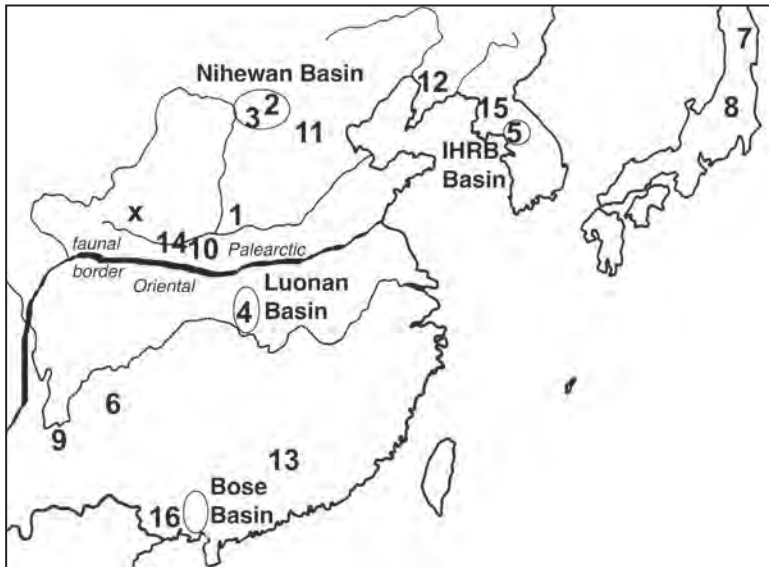


Figure 3.1 Palaeolithic Sites mentioned in Chapter 3

For further political and geographical references, see Figures 1.1 and 2.1–3; X = site of Baoji coring in BOX 3.3. Locations approximate.

Sites with only stone tool remains:

Early Pleistocene:

- 1 Xihoudu
- 2 Majuangou III
- 3 Xiaochangliang

Middle Pleistocene:

- 4 Jigongshan
- 5 Chongokni
- 6 Panxian-Dadong

Late Pleistocene:

- 7 Kanedori
- 8 Tategahana

Sites with hominin fossils:

Homo erectus, Early

Pleistocene:

- 9 Yuanmou

Homo erectus, Middle

Pleistocene:

- 10 Lantian
- 11 Zhoukoudian Loc. 1

Intermediate *Homo* fossils, Middle Pleistocene:

- 12 Jinniushan
- 13 Maba
- 14 Dali
- 15 Taehyun-dong

***Homo sapiens*, Late Pleistocene:**

- 16 Zhiren Cave
- 11 Zhoukoudian Upper Cave

Early Modern Humans (EMH):

- 11 Tianyuan Cave, near Zhoukoudian

There is a real problem in understanding the evolution of *Homo erectus* because their current earliest known date in Africa (1.75mya) is later than HE as known in the Caucasus (1.85–1.78mya).¹³ This implies that well before 1.85mya, hominins of some sort had left Africa, traveled as far as the Caucasus, possibly evolving into HE along the way and then radiating out from there, back into Africa and across Asia.¹⁴ It is also as yet unclear whether HE reached East Asia exclusively through a southern route. From 3mya, a northern route across Eurasia was also possible as grasslands expanded after the northern Tibetan Plateau uplift.¹⁵ No evidence of HE yet exists in Central Asia, but finding such remains would clarify the route(s). Although several hominin species may have made it Out of Africa, the consensus view is that only HE reached eastern Asia in the Early Pleistocene (see Appendix E.1), though Chinese archaeologists reserve the possibility that *Australopithecus* might also have been present.

Palaeomagnetic dates from several sites in the north and south China Mainland now illustrate human occupation well beyond one million years ago.¹⁶ These dates correlate well with biostratigraphic dating using faunal remains.^v It is notable that among the Early Pleistocene sites that have produced stone tools and copious faunal remains,^{vi} hominin fossils have only been recovered from Yuanmou

and their ancestors: genera *Australopithecus*, *Paranthropus*, and *Homo* (Dennell 2009: table 2.1). Archaeological writings earlier than the mid-noughties (*ca.* 2005) use 'hominid' in the 'hominin' sense.

^v See CKJ Box 3.

^{vi} The Longgupo fossils may be from an ape species (Chen, C. 2003; Ciochon 2009).

(contested) and the Gongwangling locality at Lantian (HE s.l.) (Figure 3.1).¹⁷ Thus, it is still too early to provide a definitive account of the First Peopling of East Asia, by exactly whom or via what route. Changes in the Early Pleistocene environment are now the focus for interpreting hominin migration into and habitation of eastern Asia, and it is noted by researchers that HE adapted to upland environments early on.¹⁸

Habitats, habits and habitation

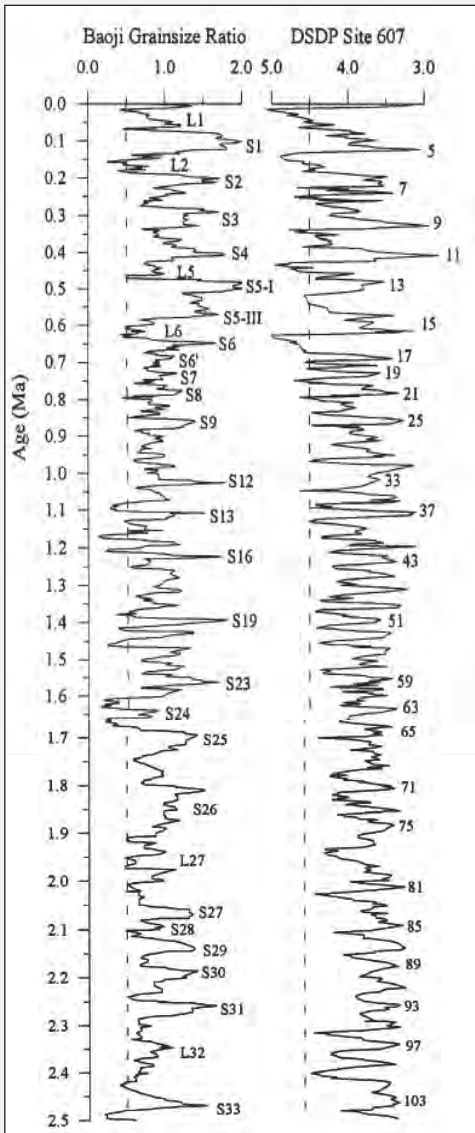
The climate in East Asia is conditioned by the East Asian Monsoon – a weather pattern that began 22 million years ago.¹⁹ The annual seasonal monsoons consist of humid air flowing onto land from the oceans in the summer, resulting in major precipitation, then the reverse in winter with dry cold air flowing out of the continental interior, resulting in the drying of the interior. When the summer monsoon was dominant for a substantial amount of time (decades, centuries, millennia), inner East Asia would be warmer and wetter with dense forest growth; when the winter monsoon dominated, the interior would be colder and dryer, leading to grassland and desert formation. The strength of monsoonal variation increased just prior to the beginning of the Pleistocene, which itself is marked by climate cooling and the onset of northern glaciation from 2.5mya. These changes are linked to the uplift of the northern Tibetan Plateau, which changed patterns of air circulation across Eurasia, leading to periodic shifts between glacial and non-glacial conditions.

Contrary to our earlier understanding of four major Pleistocene glaciations, new research has identified rapidly (in geological time) oscillating glacials and interglacials, with many minor stadial (cold) and interstadial (warm) periods. Loess records in China (BOX 3.3) yield 166 ‘events’ or shifts between warm humid and cold dry spells.²⁰ Between 1.6 and 0.8mya, the shifts occurred generally on a 41,000-year cycle; from 1mya, a 100,000-year cycle came to dominate, increasing after 0.5mya.²¹ But what does all this mean for the climate of Pleistocene East Asia? Glaciers were confined to high altitudes (as on the Tibetan Plateau), so there were no large ice cap formations as in Europe and North America. The major ramifications were the migrations of vegetational types and animals north and south depending on the relative strengths of the summer and winter monsoons – not in single years but following the cyclicity of glacial and interglacial, stadial and interstadial periods.

Early Pleistocene *Homo erectus* populations are considered to have lived at the whim of the weather, accommodating their range to rather frequent oscillations between cold and warm periods. Currently the

BOX 3.3 Loess stratigraphy and an MIS curve at Baoji

The drying of the Eurasian interior allowed much desert dust to be carried by winter winds and deposited across the north China Mainland. When the rate of dust accumulation outstripped soil formation, a peculiar type of sediment called loess formed. Loess can be up to 180m thick and preserves detailed climatic information in its successive depositions. Its grain size distribution informs on the strength of winter winds, with larger grains carried by colder stronger winter winds; during mild spells and interglacials, soils may form, remaining as palaeosols in the loess stratigraphy.



The construction of a grain size proxy for climate change over 2.5mya has been accomplished for a loess section at Baoji (see Figure 3.1). This coordinates with the Marine Isotope Stage (MIS) curve (see Appendix A on scientific dating) at marine core site 607.

Between 2.5–1.6mya the Baoji cycles are variable; a 40ka cycle obtains between 1.6–0.8mya; and from 1mya, a 100ka cycle comes to dominate, increasing after 0.5mya. The loess warm periods (Baoji S-peaks, indicating 'soils') are considered to correlate well with the MIS warm periods (odd-numbered Site 607 peaks), while L-peaks (for loess) coordinate with unnumbered cold troughs.

Loess is a sediment comprised of dust that has undergone chemical changes after being deposited by wind. "True (typical) loess can be described as a loose deposit with coarse silt predominant in grain size, unstratified, porous, permeable, stable in steep walls, easily erodible by water, 'structured light loam' of pale yellow color due to finely dispersed limonite (iron hydroxides), quartz as main mineral constituent (40–80%), subordinate feldspar content, variable amounts of clay minerals (5–20%) and carbonates (1–20%)" (Pésci 1990: 2).

best information on hominin occupation in the Early Pleistocene comes from the many stone tools (lithics) excavated in the Nihewan Basin, though no actual fossils or habitation remains are known there. Because of the numerous lithics discovered, some assume that the basin was occupied densely and continuously for a million years.²² However, the Baoji loess record confirms multiple shifts in climate during those million years (see BOX 3.3); others have argued that because the occupants had neither fire nor probably clothes or sturdy shelters, they most likely occupied the basin during particularly mild times but took refuge in the south during cold spells.²³ However, cold period occupation has recently been documented at Nihewan,²⁴ so the debate goes on.

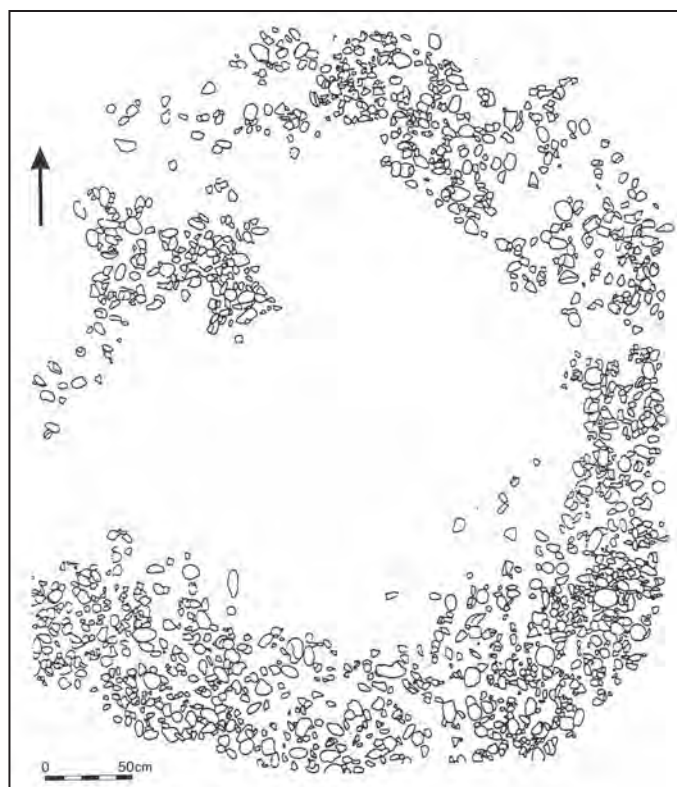
In the Middle Pleistocene, cold periods were much longer and more severe. It is not surprising that evidence for the use of fire appears, for example at Zhoukoudian Locality 1 (see BOX 3.1) – though possibly not to the extent previously thought. The thick layers of ‘ash’ supposedly identified in the deep cave deposits have proven not to have been fire ash in the areas re-examined.²⁵ Still, a possible hearth, ash and charcoal heaps, and a variety of burned materials – bone, stone, wood, seeds and a carbonized leaf – suggest that HE used fire in the

cave,²⁶ while at the Jinniushan site, stone clusters containing cut, crushed and burned bone and sealed with ash-bearing clay indicate the cooking of meat in the cave.²⁷ The use of fire might also have developed together with a sense of a cave as a ‘home base’.²⁸ The discovery of stone circles 1.5–2.5m in diameter from Jigongshan, one of several Middle Pleistocene sites in the Yangzi River drainage,²⁹ may relate somehow to dwelling structures (Figure 3.2).³⁰

The concept of ‘home range’ is also used to describe the Middle Pleistocene hominins’ exploitation of the landscape. The range, in this case, is determined by how far people traveled to obtain stone resources for tool making; it seems that 4–5km was normal,

Figure 3.2 Stone circle found at the late Mid-Pleistocene site of Jigongshan

The internal section (diameter 1.5–2.5m) yielded no artifacts, but the stone circle itself was composed of unmodified stones plus debris from lithic manufacture.



with some excursions up to 7km.³¹ Both the criterion and the distances are quite different from later times: compare the idea ‘home range’ based on distance of *lithic* resources to the idea of ‘resource catchment’ based on exploitation of *food* sources within a certain geographical range; and compare this limited range of excursion of early humans to find stone tool materials with Late Pleistocene procurement of *lithic* resources from hundreds of kilometres away.

With the wider use of radiometric and palaeomagnetic dating, faunal dating,³² though still valid, has become subsidiary to the use of faunal remains as ‘indicator species’ in postulating environmental surroundings of hominin sites. The northern (Palearctic) fauna is characterized by the open-steppe species of Northeast Asia, while the southern (Oriental) fauna is characteristic of the forests of southern China and Southeast Asia.³³ The Palearctic and Oriental faunal groups fluctuated through time – as known, for example, by the occurrence of *Equus* sp. (horses, a northern grassland animal) in the southern sites of Renzi Cave and Longgupo during the colder Early Pleistocene, and the occurrence of *Ailuropoda* (Giant Panda), *Bubalus* (water buffalo) and *Macaca* (macaques) north of the Qinling Mountains in warmer periods.³⁴ In addition to their use as environmental indicators, faunal remains are, of course, important for assessing the diet of early humans, information being accessed from the bone remains themselves and through stone tool kits.

Their tool kits

Australopithecines (including *Paranthropus*) in Africa are now thought to be the earliest tool-makers, with *Homo* species lagging not far behind. This early tool technology, dating back to 2.6mya, is characterized as Oldowan, with flaked cobbles and unmodified flakes used as tools. Early Palaeolithic tools discovered in China belonged to this technology and persisted throughout the Pleistocene. These tools are extremely simple, and there are ongoing arguments about the human manufacture of some discoveries.^{vii} Archaeologists are now arguing for more contextual interpretations, including not only the feasibility of the dating, stratigraphy, and environment but also the operational sequence of manufacture (*chaîne opératoire*) in understanding tool production processes from core, flake and shatter data rather than single objects.

Considerable discussion revolves around whether the lack of bifacial tool-making in the Early Palaeolithic of East Asia was a sign of technological conservatism or due to other local factors.

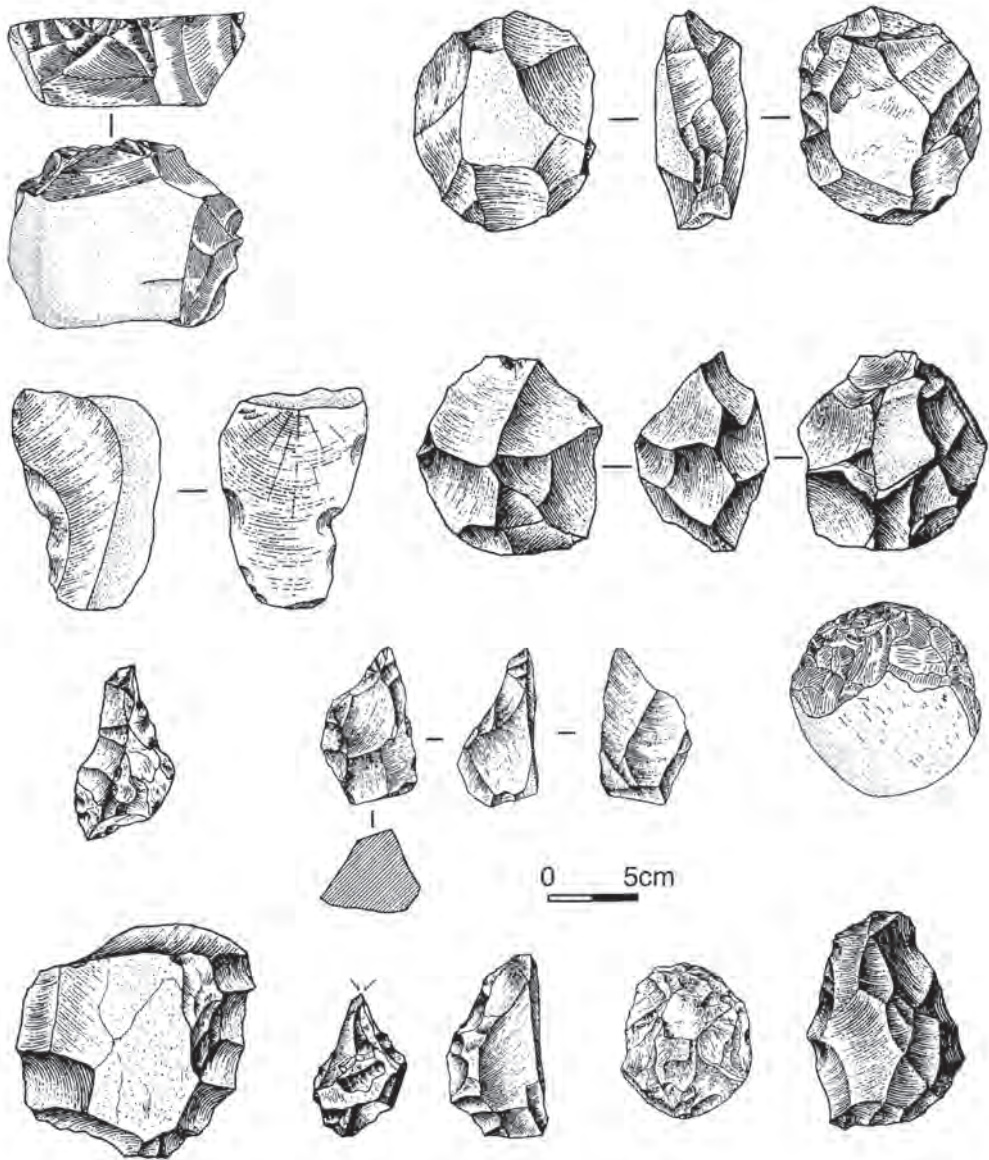
^{vii} As at Renzi Cave (Dennell 2009: 178).

The debate flows around two anchors: the Acheulean tradition of bifacially flaked handaxes and the Movius Line denoting the distribution limits of Acheulean handaxes. Acheulean handaxe manufacture developed in Africa around 1.7–1.6mya (just about the time of *Homo erectus* occupation of East Asia) and continued until 0.2mya.³⁵ Despite the timing, it appears that people brought with them the older Oldowan technology but not the newer Acheulean.^{viii} The Movius Line marks the easternmost distribution of Acheulean bifacially flaked handaxes as defined in 1948;³⁶ currently its extent is drawn from the Ganges River mouth in India northwest through central England. Handaxe absence farther east was attributed to the availability and usefulness of bamboo as a substitute for stone tool making. This ‘bamboo hypothesis’, however, has recently been dismissed on two major grounds:³⁷ Palaeolithic occupation in East and Southeast Asia did not always correlate well with bamboo forest distribution, and rain forest occupants can and do have sophisticated stone tool technologies. Moreover, it explains neither the absence of the Acheulean directly north of the Movius Line in non-bamboo regions nor the penchant of researchers to consider only the eastern cultures somehow ‘primitive’ while the western cultures without handaxes are not so derogatorily branded.³⁸ Finally, the Movius Line as describing the Middle Palaeolithic industries is found to have no chronological basis whatsoever.

Earlier researchers divided Early Palaeolithic assemblages on the China Mainland into a chopper-chopping tool tradition producing large core tools vs. a small flake-tool tradition.³⁹ But since core and flake tools often co-occur, the Early Palaeolithic tool kit is now seen simply as a non-standardized ‘core-and-flake’ tradition (Figure 3.3).⁴⁰ It’s partly a matter of intention: Did one hammer a rock aiming to flake off enough bits to leave a handaxe, perhaps keeping a few flakes as tools; or was the aim to produce sharp-edged flakes, then toss the core? Flakes were produced by direct percussion on a cobble with a hammerstone, or by the bipolar technique: setting the cobble on an anvil-rock and bashing it with another rock, detaching flakes from both its ends. Most flakes were used without further shaping or edge refinement, but some have retouched edges, demonstrating knowledge of fine flaking.

In the later Middle Pleistocene from about 400kya, the bipolar technique disappeared and flakes were detached from disc-shaped

^{viii} ‘Modes’ were devised by Grahame Clark in 1969 to describe lithic succession in world prehistory, with Mode 1 = Oldowan, Mode 2 = Acheulean, and Mode 3 = Levallois (see Shea 2013). Shea argues that these terms should be discarded as they have now been superseded by more data on local sequences and that the whole system of lithic technological change needs to be rethought.



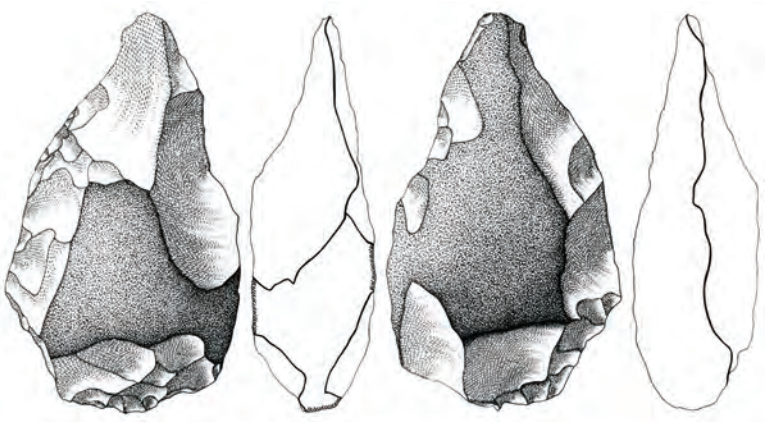
cores or from cobbles struck from different directions; some flakes were then retouched as side-scrapers.⁴¹ Several clusters of bifacially flaked handaxes are now recognized from some Middle Pleistocene sites (Figure 3.4): particularly from the Bose and Luonan Basins in the south-central China Mainland and in the Imjin/Hantan River basin on the Korean Peninsula, especially at Chongokni. There is some dissension as to whether these fit into the Acheulean category; in general, the technology is considered convergent (independently invented) with the Acheulean rather than requiring introduction by

Figure 3.3 Core-and-flake tools of Middle Pleistocene East Asia
Early Palaeolithic artifacts from the Luonan Basin, China.

new peoples.⁴² The larger issues involve why handaxes in the East should occur in such low frequencies and scattered distribution compared to the West. Thus, there is debate whether the Movius Line, despite its original negative connotations that East Asian hominins were somehow backward or unskilled, is still valid and can serve to formulate research questions.⁴³

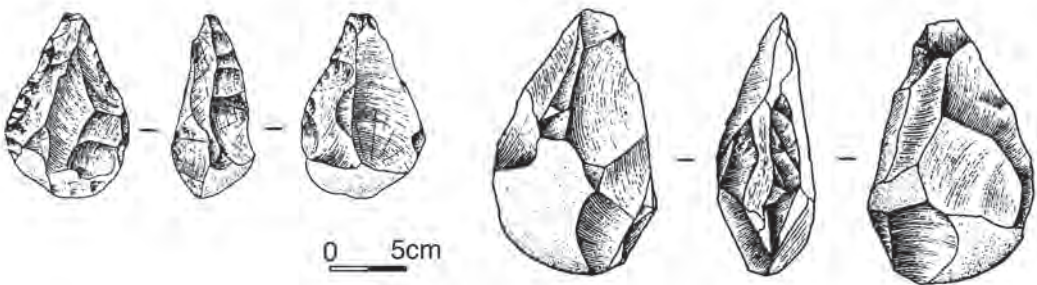
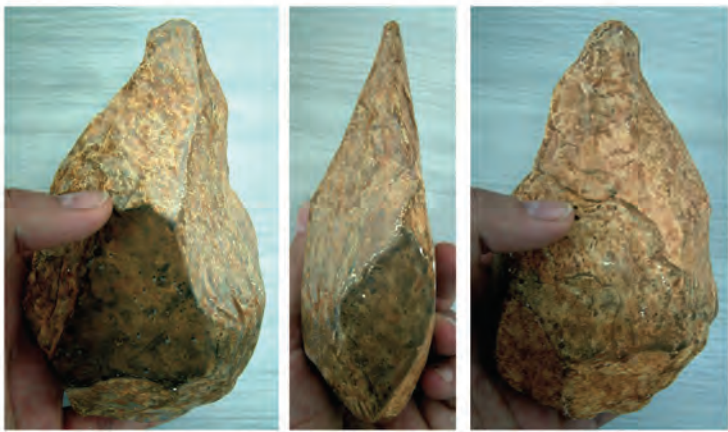
Figure 3.4 Early Palaeolithic handaxes from continental East Asia

These are core tools as made from a cobble by removing flakes to produce a cutting edge. Bifacial flaking is incomplete, with cortex (original weathered surface of the cobble) generally remaining on one or both sides.



Right: from the Chongokni site, Korea

Bottom: from the Luonan Basin, China



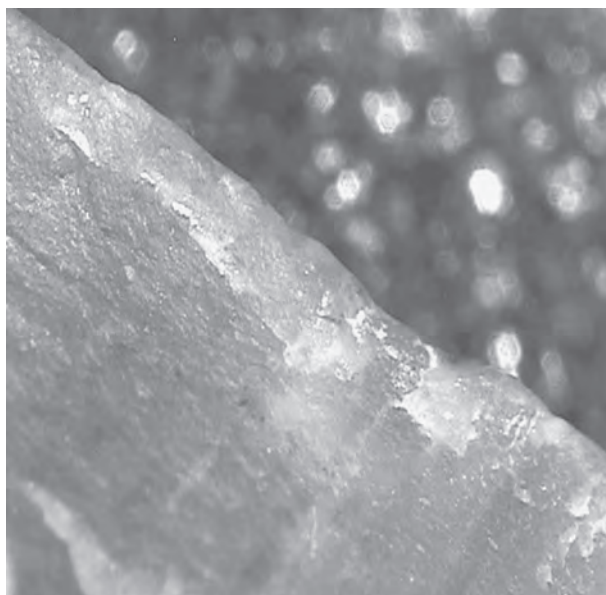
Another western technique known as Levallois has also been identified as far east as Inner Mongolia in Middle Pleistocene assemblages.⁴⁴ In the Levallois technique, a bifacially prepared core is flaked so that one flake of relatively controlled size and shape can be detached from the center. Such prepared core techniques proliferated with the appearance of blade and microblade technologies in the Late Pleistocene (Chapter 4).^{ix} All these new technologies raise questions about the extent to which occupants of East Asia were in touch with their western counterparts, or indeed whether peoples were continuing to arrive from the west, as possibly indicated by changes in human skeletal morphology discussed below.

What these various tools were used for can best be assessed through use-wear analysis. Particular kinetic activities such as cutting/sawing, scraping, or drilling leave characteristic marks on the tool edge, and the kind of material operated on will result in specific kinds of damage or give a certain kind of polish to the edge. Thus can woodworking, bone-working and plant harvesting activities among others be microscopically identified from tools, while cuts and scrapes on bone and wood provide other sources of information. One hypothesis proposes that simple East Asian flake tools were used for gathering forest plant resources rather than defleshing animals, and pounding tools were used for extracting marrow from long bones, as evidenced at the Majuangou III site in the Nihewan Basin.⁴⁵ However, use-wear analysis of tools from Xiaochangliang (Figure 3.5) reveals that the scraping and cutting of animal bone, flesh and hide accounted for 52% of the use-wear marks, while only one tool was used on plant material.⁴⁶ Most of these tools were unretouched flakes used as scrapers.

Despite our image of Ice Age big game hunters, Early Pleistocene hominins in the Nihewan Basin are postulated by some to have been scavengers rather than hunters – a strategy pursued even in the Middle Pleistocene by Zhoukoudian occupants.⁴⁷ Others disagree, noting that scavenging is not a reliable

Figure 3.5 Use-wear evidence from woodworking on a quartzite tool from Xiaochangliang

The edge of the tool shows 'roll-over scarring'; and perpendicular to the rounded edge is a series of scars with 'feathered or stepped terminations'.



^{ix} A different type of prepared platform was recovered from Panxian Dadong in the far south (Miller-Antonio *et al.* 2004).

strategy for obtaining animal protein; specialized hunting tools, however, are known only from the Late Pleistocene.⁴⁸

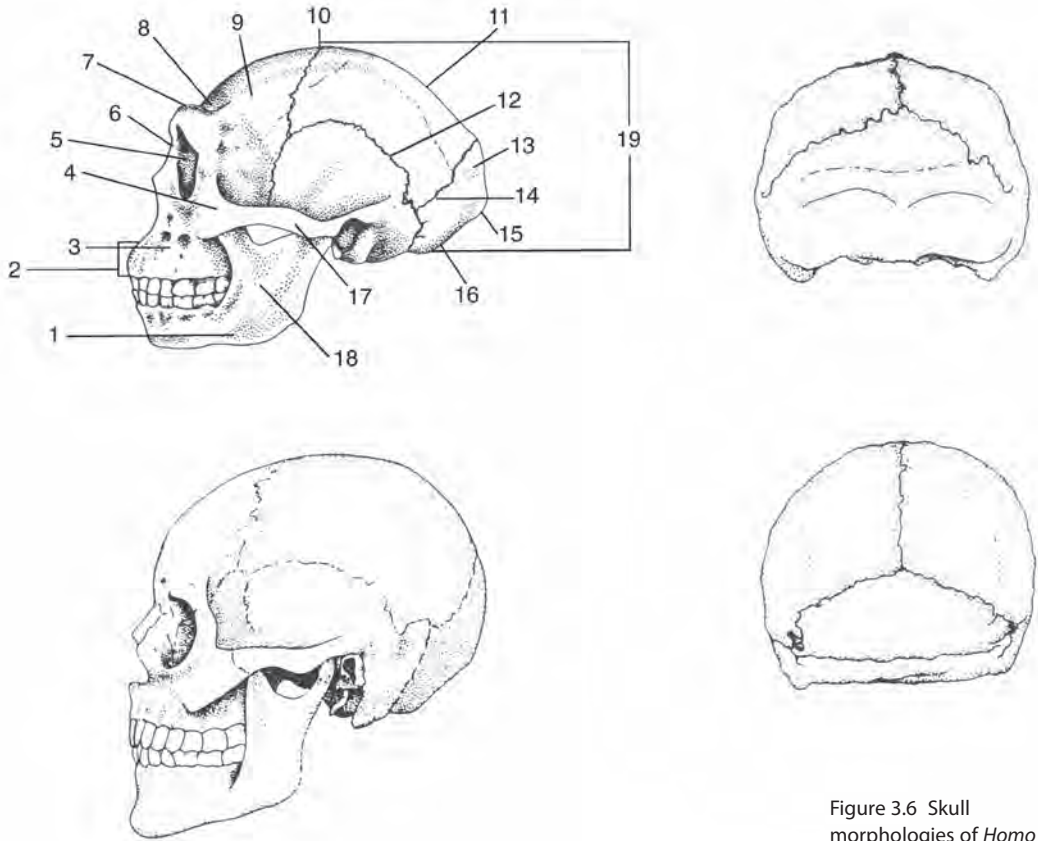
Intermediate peoples

As indicated above, the Middle Pleistocene was a period of increasingly long and cold glacial spells, which forced occupants of Eurasia out of northern climes into southern ‘refugia’. It is currently postulated that the isolation of *Homo erectus* groups in these refugia may have led to further speciation,⁴⁹ and several Pleistocene forms have been given species status: e.g. *Homo heidelbergensis*, *Homo neanderthalensis*, *Homo antecessor*, and *Homo floresiensis*. It is notable that sites in the later Mid-Pleistocene into the Late Pleistocene in China have also yielded fossils of hominins that show characteristics divergent from HE *sensu stricto* and thus possibly evidencing local evolution. These intermediate forms are assessed in widely differing fashions by Chinese and Western scholars (see Appendices E.2 and E.3).

Three of these intermediate fossils in China (from Maba, Dali and Jinnuishan) have been identified as possible descendants of *Homo heidelbergensis*,⁵⁰ who were “arguably found throughout Eurasia from about 600,000 to 400,000 years ago”⁵¹ (but some would argue not). *Homo neanderthalensis* is also known to have reached the Siberian Altai, leaving genes in the modern Chinese population.⁵² Chinese archaeologists consider the intermediate fossils to be transitional forms in the local evolution of HE to HSS because those intermediates share some dentition and cranial morphology with HSS, despite their considerable differences (Figure 3.6).⁵³ These transitionals are often referred to by Chinese archaeologists as ‘archaic *Homo sapiens*’ despite the presence of considerable regional variability. The use of *Homo sapiens* in this context goes directly against the consensus view that HS arrived from the west in Out of Africa 2 and did not evolve from regional populations in Asia. Others, however, have proposed that the indeterminate morphologies are due to interactions with groups from farther afield,⁵⁴ earlier than the Second Peopling.

The second peopling, or Out of Africa 2

The evolution of anatomically modern humans, *Homo sapiens* (HS), took place in Africa from *ca.* 200kya. There appear to have been at least two migrations out of Africa by different lineages of this population: one shorter-lived excursion from Egypt into the Levant (and perhaps Arabia)⁵⁵ about 120kya which survived until 70kya (Out of Africa 2a); and a more permanent excursion across the Red Sea onto the Arabian peninsula and on to the Indian subcontinent



- | | |
|-----------------------------------|------------------------------|
| 1 Mandible (lower jaw) | 11 Sagittal suture |
| 2 Aveolar prognathism | 12 Squamosal suture |
| 3 Maxilla (upper jaw) | 13 Occiput (occipital bone) |
| 4 Zygomatic bone (cheek bone) | 14 Lambdoid suture |
| 5 Orbit (eye socket) | 15 Nuchal torus |
| 6 Nasal root (bridge of the nose) | 16 Nuchal line |
| 7 Supraorbital torus (brow ridge) | 17 Zygomatic arch |
| 8 Postorbital construction | 18 Ascending ramus (jawbone) |
| 9 Frontal bone | 19 Vault height |
| 10 Coronal suture | |

Figure 3.6 Skull morphologies of *Homo erectus* (HE, above) and *Homo sapiens sapiens* (HSS, below)

Homo erectus differed from modern humans in having a receding chin, pronounced jutting of the jaw (2), and virtually no forehead (8): a keeled skull (11) sloped back from a very heavy brow ridge (7). The skull also had thicker walls, better-developed zygomatic arches (17) for attaching the jaw muscles, a more pronounced nuchal torus (15) for attachment of the neck muscles, and a smaller cranial capacity (775–1225cc) than at present (mean 1350cc). The HE male is estimated to have stood 156cm and the female 144cm tall.

around 72kya (Out of Africa 2b). DNA work suggests that “all non-African people are descended from this latter group”,⁵⁶ represented by a single female lineage dubbed ‘Eve’ but now better known as mtDNA lineage L3 (BOX 3.4).

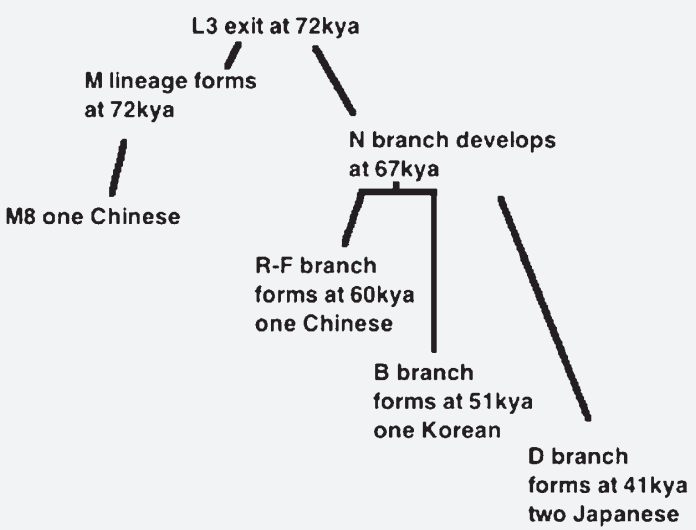
When the ‘Eve’ hypothesis was proposed in the late 1980s, the idea of population replacement was hotly contested by East Asian archaeologists and physical anthropologists. Chinese archaeologists and many physical anthropologists argued for indigenous evolution from HE to HSS due to archaic feature retention in skeletal

BOX 3.4 DNA research implications for East Asians

The original ‘Eve’ hypothesis was based on analysis of mtDNA, or DNA carried in the mitochondria – not the nuclei – of cells and passed on only through the female line. Since then, analysis of male DNA carried out on the Y chromosome (NRY) has added to our understanding of population genetics and dispersals. Both the mtDNA and NRY data indicate that only one among many African population branches of mtDNA (L3) and one branch of NRY (CF) exited from Africa. During the traverse across southern Asia, the L3 mtDNA split into branches (M and N), while Y chromosome CF split into several branches, one mutating to form the DE-YAP+ which is diagnostic of East Asia. These data suggest a single successful exit of several hundred *Homo sapiens* across the Red Sea and rapid colonization of Asian coastal areas, but there are problems coordinating mtDNA and NRY which may modify this ‘single exit’ hypothesis in future.

An analysis of 52 complete mtDNA sequences suggests several groupings of non-African populations and the timing of their divergence (below). In this study, the exit of L3 from Africa is dated to 72kya (though some use 82kya) with subsequent divisions into M- and N-branches. The M-branch developed almost immediately at 72kya and includes one Chinese individual in sub-branch M8. The N-branch developed at 67kya, sub-dividing later into the R-F, B and D branches. Another Chinese is represented in the R-F sub-branch developing at 60kya, and one Korean in the B sub-branch developing at 51kya, while the D-branch, including two Japanese individuals, developed at 41kya. On this basis, modern peoples (HS) in East Asia could not have pre-dated the initial branch splittings at 72 and 67kya.

Many sub-branches developed in the three key East Asian founder mtDNA haplotypes (M,N,R) during the Late Pleistocene; the greatest variety is in southwestern China, supporting hypotheses that East Asia was colonized by modern humans coming from the south.



morphology as noted above. If replacement was total, as advocated by the initial proponents, then how did modern Chinese come to share some features of the Asian HE population? Since then, the concept of wholesale replacement has been modified to include some initial gene pool sharing with previous populations. Whether Neanderthal genes appear in modern European populations is controversial, but some studies estimate a presence of 4% to 14%.⁵⁷ If interbreeding happened between *Homo neanderthalensis* and *Homo sapiens* in western Eurasia, HS coming in to East Asia might well have bred with local HE, their transitional descendants, and/or other resident *Homo*. Studies do not agree. One finds 1.5% archaic DNA in modern East Asian populations, while another infers an archaic region of the X chromosome as coming from HE.⁵⁸ But a third finds no connection between HE and HSS in East Asia.⁵⁹ If there was a contribution, where and when did HSS meet the local inhabitants?

New finds from the southern China Mainland challenge the ‘single exit’ hypothesis that restricts *Homo sapiens*’ arrival from the west to later than 72kya (see BOX 3.4). The fossils from Zhiren Cave, dated to >100kya, show modern features that *could* derive from “dispersal with assimilation or populational continuity with gene flow”.⁶⁰ The archaeological date is too early for the genetic scenario given above and would have required an earlier exit from Africa of AMH (anatomically modern humans) to mix with transitionals in northern Southeast Asia and southern China. These data revive the specter of an older ‘two exit’ model, or they require acknowledging that the initial trek Out of Africa 2 at *ca.* 120kya actually extended farther eastward than thought. The jury is still out.

Another possible example of interbreeding is suggested by variation in the fossils discovered in Layer 4 of the Lower Room in the Upper Cave at Zhoukoudian, possibly dating between 29 and 24kya.⁶¹ Considered to be fully modern humans and showing “a morphological resemblance to Upper Palaeolithic Europeans”, they nevertheless “have not been classified conclusively into any recent modern human population to which they have been compared, and classification results differ for each cranium.”⁶² Their modern status is further confirmed by the presence of numerous decorative artifacts associated with modern behavior: perforated marine shells, calcareous beads and animal teeth presumably used for personal adornment, and hematite perhaps used as body pigment or to color artifacts.

Eurasian specimens classified as Early Modern Humans (EMH) date between 45 and 25kya;⁶³ examples are known from several Mainland sites (Appendix E.3). DNA analysis of the remains at Tianyuan cave, dated to *ca.* 40kya, revealed archaic traits that might have been due to gene flow from Neanderthal populations but no

greater than that characterizing the modern East Asian population.

One of the problems in assessing the Peopling of East Asia lies in the differential natures of genetic and morphological evidence. The original rejection of the genetic 'Eve' hypothesis was grounded in assessment of skeletal morphology; this argument between the two groups of scientists continues. The story is just beginning on "how, when, and how often *H. sapiens* dispersed across southern Asia".⁶⁴

How far east did Pleistocene hominins go, and when?

While the majority of Early and Middle Pleistocene finds in East Asia are on the China Mainland, growing numbers of sites suggest at least Middle Pleistocene occupation of the Korean Peninsula and a definite late Pleistocene occupation of the Japanese Islands.⁶⁵ Jinnuishan, a Middle Pleistocene hominin location on the eastern edge of the Manchurian Basin, is the easternmost extension of early *Homo* fossils within modern China;⁶⁶ thus it would not be surprising if early humans made it farther into the Korean Peninsula or even into the Japanese archipelago.

Hominin fossils have been found at fewer than ten Peninsular sites; only the remains from Taehyun-dong [Daehyundong] are early and reliably dated in association with early Middle Pleistocene fauna.⁶⁷ The site of Chongokni is now well known for its bifacial handaxes (see Figure 3.4); these were instrumental in disproving the existence of the Movius Line as excluding bifacial lithic technology from eastern Eurasia. These artifacts are now securely dated to the Middle Pleistocene – present by at least 350kya, though continuity of settlement is unknown. Several other Peninsular sites might be older than Chongokni, and others have the 'Chongoknian' assemblage of bifacial handaxes, cleavers, and flake tools. Over 100 Peninsular sites have yielded Palaeolithic stone tools from the Middle Pleistocene onward, though only a few poorly dated sites contained remains of Upper Palaeolithic hominins; two sites are dated between 120 and 40ka, and some of the fossils have been attributed to HS.⁶⁸ This evidence of occupation in the early Upper Pleistocene contrasts greatly with the situation in the Japanese Islands.

Palaeolithic studies in Japan suffered a terrible blow in 2000 when it was discovered that one archaeologist had committed fraud by compromising the lithic discoveries at 186 Palaeolithic sites over a period of 25 years.⁶⁹ By inserting Jomon-like stone tools under datable tephra layers, he was able to push back the Japanese Palaeolithic to 700kya. Unfortunately these meaningless dates were widely published,^x but now, Palaeolithic archaeology in Japan is back

^x Barnes 1999 and Barnes & Okita 1999.

to where it was in the 1970s, when few sites were known before 30kya.⁷⁰

Uncertainty remains as to whether the Japanese Islands were occupied before 40kya. After that, most sites conform to four necessary criteria: 1) undeniably human-made artifacts that are 2) stratigraphically secure and 3) not isolated but belong to an artifact assemblage, plus 4) a clear and stable site formation process.⁷¹ For example, the site of Tategahana (Nojiriko) in central Honshu has long been considered a Palaeolithic kill site because of the high percentage of straight-tusked elephants (stegadon 91.9%) versus giant deer (7.9%).⁷² One elephant rib was embedded with a stone point; other lithics included scrapers and drills, while bone tools and a wooden spear shaft were uniquely preserved at this lakeside site. The megafauna bone remains are reliably dated 53–42 cal.kya, but researchers are sceptical about the association of the artifacts with the animals and often do not accept the stone point in the rib bone as human made.

In addition to the above four criteria, early sites also have to make sense within capabilities of the hominin species which produced them. Kanedori is another controversial site with a biface under a tephra layer dated to 80kya, and bifaces with flake tools dated by fission track to 67kya.⁷³ Skepticism surrounds these finds, especially since one of these dates predates the postulated 'single exit' Out of Africa 2 at 72kya. If these belonged to Early Palaeolithic peoples, then they would logically belong to an evolved form of *Homo erectus*, who had to have sea-faring abilities to cross the straits or who had crossed on the previous land-bridges at 400kya. If HE arrived so early, why are there not more obvious Early Palaeolithic sites?⁷⁴

If Japan did have an Early Palaeolithic, it is not yet well established. And it is a matter not just of solving the problems of artifact authenticity and site dating but of understanding how and when early *Homo* might have crossed over to the islands and why there is no greater record of them. Moreover, whether the sudden increase of sites in Japan after 40kya had anything to do with HS migration and/or the introduction of the new Upper Palaeolithic blade technology is one of the major research problems today.

The lesson to be learned from this overview is that the evidence for *Homo* in East Asia is extremely fluid, with new discoveries, new dates, redatings, and changing fossil attributions constantly coming to the fore. Whatever is written about the Palaeolithic above is not written in stone, which makes it all the more exciting to follow the multiple lines of current research in palaeoanthropology.

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Chapter 4

Innovations of Modern Humans

(40,000–10,000 years ago)

Modern peoples and their accoutrements

Late Pleistocene East Asia was a mosaic of different peoples and different stone-working technologies that had to cope with radically different environments: grasslands and desert in the north, subtropical to tropical rain forest in the south – not to mention the cyclical glacial/interglacial cycles. As with *Homo erectus*, who is thought to have arrived from the south, *Homo sapiens* also might have first reached East Asia from the south via a “savannah corridor” across mainland Southeast Asia.¹ Another scenario has them traversing like “beachcombers” around the edges of the South and Southeast Asian landmasses,² but there are many problems with this idea of a “coastal superhighway”.³ Regardless of the route, it is likely they arrived between 60 and 50kya, if not before.

As the core-and-flake technology is continuous from the Early Pleistocene into the Holocene of East Asia, the first appearance of anatomically modern humans from the south was *not* accompanied by a change in stone-tool technology. Instead, there were later and different connections overland in the *north* by which new, so-called ‘prepared-core’ technologies were introduced.

Admixture with local populations or brief co-existence of incoming modern peoples with indigenous residents may have given rise to much genetic variation across the landscape. But this is only faintly suggested through very scanty fossil remains (Chapter 3). This paucity of fossil evidence means that it is still premature to identify the exact type of peoples occupying East Asian sites in the Late Pleistocene (Figure 4.1).ⁱ Securely dated remains of fully anatomically modern humans in East Asia have been recovered from Tianyuan Cave near Zhoukoudian at 42–39 cal.kya⁴ and at Yamashita-cho Cave 1 in Okinawa at >35 cal.kya,⁵ and it is generally assumed that all sites after 30kya belonged to modern humans. The first AMS dates obtained directly from skeletal remains put modern humans on Ishigaki Island, Okinawa, between 20 and 16 kya.⁶

ⁱ And much of the material that is known is insufficiently dated (Keates 2010).

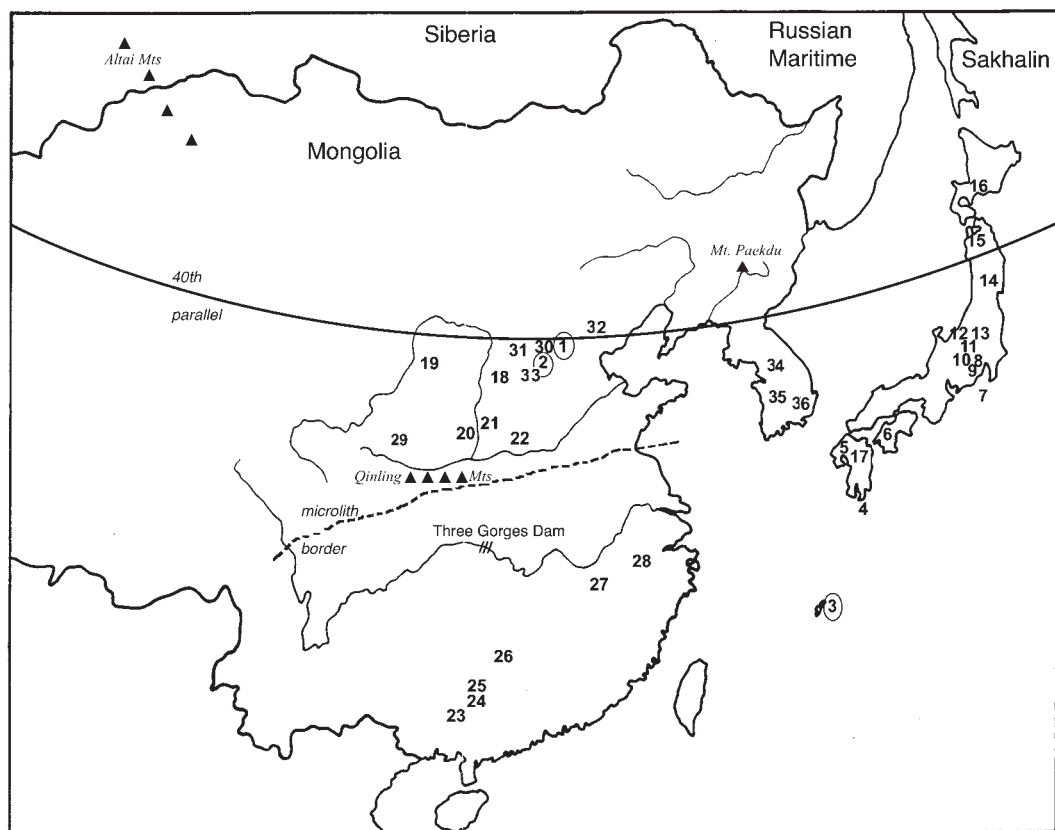


Figure 4.1 Upper Palaeolithic sites mentioned in Chapter 4. Solid line indicates the 40th parallel of latitude; dashed line indicates the maximum extent of microblades south of Qinling Mountains between 21–11kya.

• *Homo sapiens* fossils, Late Pleistocene: ①Tianyuan Cave, ② Zhoukoudian Upper Cave, ③ Yamashita-cho Cave I (Okinawa)

• Upper Palaeolithic stone tool sites:

Japanese archipelago: 4 Tachikiri, 5 Fukui Cave, 6 Kamikuroiwa, 7 Kozu Island, 8 Tana-Mukaihara, 9 Hatsune-ga-hara, 10 Maedakochi, 11 Mikoshiba, 12 Seiko-Sanso, 13 Tategahana, 14 Hanaizumi, 15 Odai-Yamamoto I, 16 Kashiwadai I, 17 Iwato
Continental: 18 Shiyu, 19 Shuidonggou, 20 Longwangchan, 21 Shizitan, 22 Xiachuan, 23 Liyuzui Cave, 24 Miaoyan, 25 Zengpiyan, 26 Yuchanyan Cave, 27 Xianrendong, 28 Shangshan, 29 Dadiwan, 30 Donghulin, 31 Hutouliang, 32 Longgu Cave, 33 Nanzhuangtou, 34 Suyanggae, 35 Sokchang-ri, 36 Chonjon-ri

DNA studies suggest that East Asian populations split from Africans around 55kya, and at 41kya, Europeans split off from East Asians.⁷ Central Asia appears to have been a region of early palaeo-asiatic radiation since the Jomon of Japan and Tibetans share very ancient DNA markers in what might be called ‘marginal survival’.⁸ Archaeologically, modern humans are documented in the Altai by 40kya,⁹ and Upper Palaeolithic tool assemblages in East Asia appear from 40kya onward (Table 4.1). Both founder haplogroups are present in modern Japan (M, N, see BOX 3.4), while two subgroups

of N representing southern and northern peoples respectively, indicate influx from two directions during the period.¹⁰ There is disagreement, however, on how old the northern subgroup is and whether it extends back into the Palaeolithic.¹¹

Traditionally, modern human anatomy and modern human behavior have been treated as separate phenomena, spurred by the increasing time depth of the former in Africa but limitation of the latter to the Late Pleistocene as known from Europe. This dichotomy has been challenged by researchers in Africa who have demonstrated that many typical attributes of modern behavior can be found in the Mid-Pleistocene Middle Stone Age of Africa.¹² Products of such behavior manifested themselves sporadically through space and time: blades, groundstone, pigment use and projectile points appear between 280 and 250kya; fishing, shellfishing and long-distance exchange occur between 140 and 110kya; bone tools, barbed points, mining and incised artifacts date to 105kya; and microliths, beads, and images appear between 70 and 40kya.¹³ Many such artifacts were made by *Homo helmei*, an African species that is conflated with *Homo sapiens* by some. Although these items did not constitute a Middle Pleistocene ‘cultural complex’, they demonstrate that their appearance piecemeal later in the archaeological record of various places did not constitute a ‘revolution’ in human behavior.

Beyond the artifactual evidence of modernity, certain behavioral patterns are thought to define modern humans. Among them are planning, scheduling, social group reciprocity, history through memory, standardization and intensification, development of artifact diversity, the structuring of living spaces, and the development of ritual and burial practices. It is now speculated that behavioral modernity appeared before morphological modernity, perhaps going back to 200kya, long before the documented second wave Out of Africa; moreover, new studies of the arrival of HS in Southeast Asia and Australia are signaled without a technological package but by “new subsistence strategies and modes of engagement with the landscape”.¹⁴

The presence of HS in East Asia, nevertheless, is marked by changes in material culture: the dominant data from the Late or Upper Palaeolithic (as it is variously called)ⁱⁱ consist mainly of stone tools with few residential remains and virtually no burials or ritual practices observable. The collection of personal ornaments from the Upper Cave at Zhoukoudian is outstanding in this respect (BOX 4.1). Ornaments and bone tools, despite their general rarity, are

ⁱⁱ ‘Upper’ Palaeolithic is chosen for use here to distinguish it from ‘Late’ Pleistocene, which has a longer time span.

Table 4.1 Climatic phases and major material cultures of East Asia in the Late Pleistocene, from oldest (top) to youngest (bottom)

First appearance of ceramics are emboldened; cal.kya = thousand years ago, calibrated. EUP = Early Upper Palaeolithic, LUP = Late Upper Palaeolithic, LGM = Late Glacial Maximum (double-boxed according to different interpretations)

Stage/ event	Dates cal.kya	Climate	Northern Mainland	Southern Mainland	Korean Peninsula (south)	Japanese Islands EUP/LUP = Early, Late Upper Palaeolithic
MIS 3	60–40 55–46	warm temperate cool phase	Early Palaeolithic core-and-flake 42–39kya Tianyuan	Early Palaeolithic core-and-flake	Middle Palaeolithic core-and-flake	>35kya Yamashita-cho Cave 1 ?Kanedori ?Tategahana
		cooling from 33kya	35–23/22kya EUP 29kya Upper Cave core-and-flake, bone/ antler tools, ornaments	core-and-flake, large cobble tools, bone tools	Upper Palaeolithic 40–24kya blades, tanged points	EUP 38–29kya trapezoids, edge- ground stone tools
			29–25kya blades and microblades	core-and-flake	30kya microblades	blade tools, backed blades
AT-tephra	30–29					
MIS 2	29–14	cold				LUP 29–11.6
	29–19 29–27		core-and-flake, microblades	core-and-flake		29–20kya backed-blade industries
LGM (Late Glacial Maximum)	23–19	COLDEST	23–22kya microblades	21.7–19.3 cal.kya ceramics in south at Xianrendong		23kya microblades enter Hokkaido
			21/20–10kya LUP	20kya shell tools, core-and-flake		22–19kya bifacial point-tool industries
Sea-level low- stand at -120 msl	19	cold				

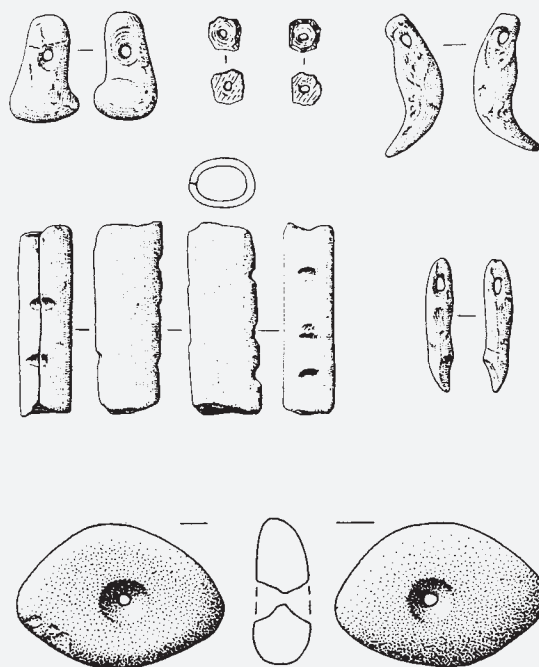
	20–16				20–19 small flake tools		microblade industries
Oldest Dryas	17–15	cold		16.3–14.7 cal.kya CERAMICS in north at Hutouliang	hoe-shaped tools		appearance of CERAMICS Odai- Yamamoto I site (ca. 16.9–15.0 cal.kya) I
MIS 1	14–11.6						NCIENT JOMON
(GI-1) Bøllering/ Older Dryas Allerød	16–15.4 /13.6	warmer with a cold phase in Older Dryas			cobble tools		linear-relief pottery
Younger Dryas stadial	13.6–11.6	colder		microblades, intensified hunting, seasonal plant use			
HOLOCENE Pre-Boreal	11.6~			Epi-palaeolithic (some sites with millet)	Epi-palaeolithic (some sites with rice)		

* It must be noted that these dates might not match those in the previous archaeological literature, with a 3000/4000-year difference for the Late Pleistocene now that dates are being recalibrated with IntCal09 (for example, AT-tephra is commonly attributed to 24kya, but calibrated it now stands at 29kya). Moreover, with the use of different calibration programs, dates may differ.

** The Upper Palaeolithic entailed part of the last temperate stage (MIS 3), the Last Glacial Maximum (LGM within MIS 2) and the post-LGM terminal Pleistocene (also MIS 2). The climate during MIS 3 (57–29 cal.kya) saw rapid shifts from warmer to colder on decadal, centennial, and millennial scales, with temperatures intermediate between interglacial and glacial maxima. According to work done on six global locations, at 50kya, the sea level was already about 70m lower than today; the northern ice caps began growing from 33 cal. kya, initiating general climate cooling. Sea level dropped another 50m at 31kya and finally reached its nadir of -120m or so and stayed there between 23 and 19kya; when ice caps began to melt at 19kya, the sea level rose again rapidly. The interval 23–19kya is usually specified as the Last Glacial Maximum, though others date the LGM from when ice cap growth reached its maximum at 26.5 cal.kya, and still others propose an 'extended' LGM from 30 to 19kya based on the period of low sea level, and some use LGM to refer only to the millennium of lowest temperature at 21kya. Here we will follow the scheme dating the LGM from 23 to 19kya.

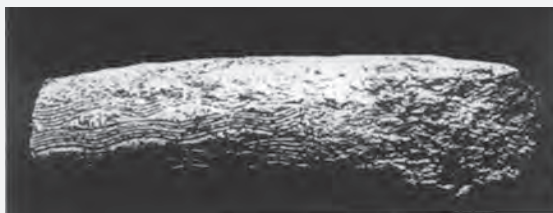
BOX 4.1 Palaeolithic art and ritual

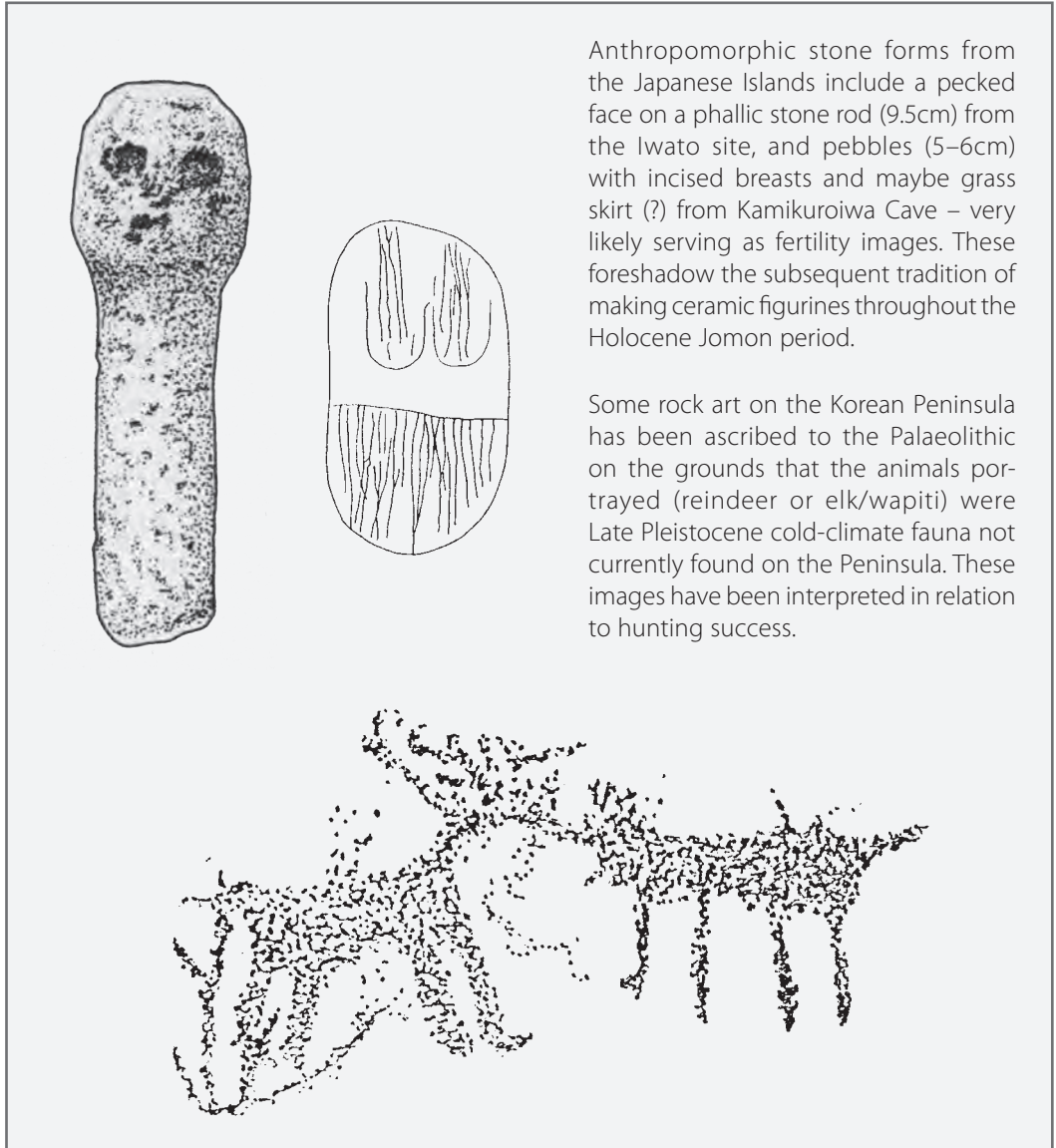
One of the markers of modern human behavior is a concern with ornament and representation, indicating certain levels of self-awareness and aesthetic appreciation. Needless to say, some of the products that we call 'art' were functional – not merely decorative – and most likely used in ensuring success in the hunt and in human reproduction. The possibility of art functioning in rituals brings together two new streams of behavior of the Upper Palaeolithic: care of the dead and ensuring family survival.



The remains in the Zhoukoudian Upper Cave have been interpreted as a burial area where at least five adults, a youth and two children were interred, accompanied by other and various personal ornaments comprising the earliest 'jewelry' known from East Asia. The perforated animal teeth and stones reveal a mastery of drilling techniques; these might have been strung as beads or pendants or sewn onto clothing with one of the bone needles found in the cave. Segments of hollow bird-bone with notches on the exterior surfaces might also be beads or clothing toggles.

Artifacts aesthetically transformed but not meant to be worn are called 'portable art'. The carved antler fragment (14cm, shown below) from Longgu Cave is one of very few such paleoart objects known from Pleistocene China. Shown are carefully incised parallel wavy lines that were infilled with red pigment; other sides bear a very complex guilloche and a reticulate rectangular design.





Anthropomorphic stone forms from the Japanese Islands include a pecked face on a phallic stone rod (9.5cm) from the Iwato site, and pebbles (5–6cm) with incised breasts and maybe grass skirt (?) from Kamikuroiwa Cave – very likely serving as fertility images. These foreshadow the subsequent tradition of making ceramic figurines throughout the Holocene Jomon period.

Some rock art on the Korean Peninsula has been ascribed to the Palaeolithic on the grounds that the animals portrayed (reindeer or elk/wapiti) were Late Pleistocene cold-climate fauna not currently found on the Peninsula. These images have been interpreted in relation to hunting success.

taken to mark the beginning of the Upper Palaeolithic on the China Mainland between 35 and 30 cal.kya.¹⁵

This chapter concentrates first on the stone tools that comprise the focus of current research on materials from the Late Pleistocene, and secondly on the limited evidence for behavioral patterning. Finally, a series of artifacts, ecofacts, and practices that in East Asia were thought limited to the Holocene but in fact occur earlier in the Pleistocene sequence are discussed in terms of ‘neolithization’.

Upper Palaeolithic climate and chronology

Scientific advances in four areas have permitted construction of a relatively fine chronology for the Upper Palaeolithic, generally defined as after 45kya. Archaeologists are increasingly using the Marine Isotope Stages (MIS)ⁱⁱⁱ and European phases of the Terminal Pleistocene to frame discussions about changes in climate and tool technology (see Table 4.1). Deep pollen cores have allowed the reconstruction of the climate and inhabiting flora of particular areas. Radiocarbon dates are increasingly processed using Accelerator Mass Spectrometry (AMS), which requires tiny amounts of material and gives tight deviations in range. Finally, the radiocarbon calibration curve has been extended back to 50kya (see Appendix A), allowing the calculation of calendar dates for the entire Upper Palaeolithic.

The period of the Upper Palaeolithic was dominated by the Late Glacial Maximum (LGM), which is defined in various ways (see Table 4.1 footnotes) but is specified here as 23–19kya. The Upper Palaeolithic entailed dropping temperature and lowering sea levels through MIS 3 (Figure 4.2),^{iv} which all reached their maxima around 21–20kya. From 19kya, temperatures rose rapidly, ice caps melted and sea levels started to rise. Most information about the Upper Palaeolithic can thus be viewed within these three phases of pre-LGM, LGM, and post-LGM. Another way of dividing the period is by using the AT-tephra fall at 30–29kya – present in the Japanese Islands and southern Korean Peninsula – to distinguish the Early Upper Palaeolithic (EUP) from the Late Upper Palaeolithic (LUP). The term ‘Terminal Pleistocene’ used here refers to the post-LGM phase.

In the pre-LGM cooling period, plant and animal communities retreated southward, leaving northern East Asia to be occupied by boreal conifer forest, tundra and desert. During the LGM, the sea level lowstand exposed the continental shelf of the Yellow Sea as a large plain dubbed the ‘Yellow Plain’, extending out to the Ryukyu Island chain, while the Japanese archipelago became a long peninsula of the continent extending from the north, bounding a smaller lake of the former Japan Sea (BOX 4.2). The Tsugaru Strait, currently separating Hokkaido and Honshu, became a land bridge, and the Inland Sea was exposed as the ‘Seto Plain’.¹⁶ Permafrost levels extended down to just north of Zhoukoudian and throughout the

ⁱⁱⁱ Some use instead the Oxygen Isotope Stages (OIS). MIS are determined on carbonate material in deep-core ocean sediments, while OIS are determined on glacial ice cores. Both are proxies for temperature changes in the past, and the stages are compatible.

^{iv} Stage 3 is considered neither a full glacial nor full inter-glacial (see Lang & Wolff 2011).

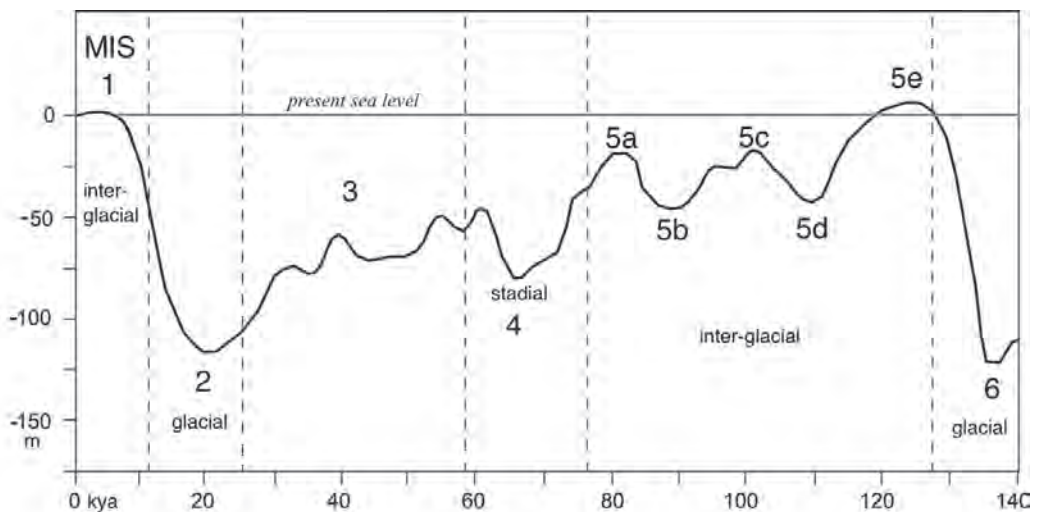
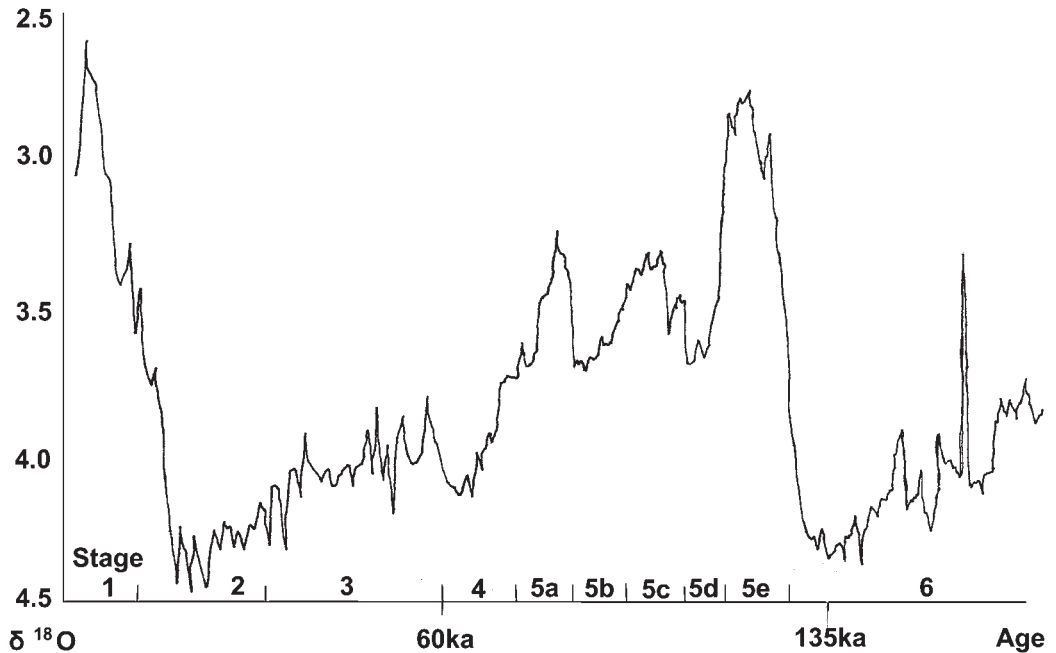


Figure 4.2 Late Pleistocene climate change, as seen in measurements of temperature (above) and sea level (below)

The MIS curve is divided into warm Inter-glacial stages (odd numbers: Stages 1,5) and glacial stages (even numbers: Stages 2,4,6). The last full Interglacial (Stage 5) ended with a cooler stadial (Stage 4); after rising again temporarily, the temperature declined through Stage 3 into Stage 2, the Last Glacial Maximum (LGM). The occupation of East Asia by modern humans probably occurred in Stage 4 – a time of cooler temperatures.

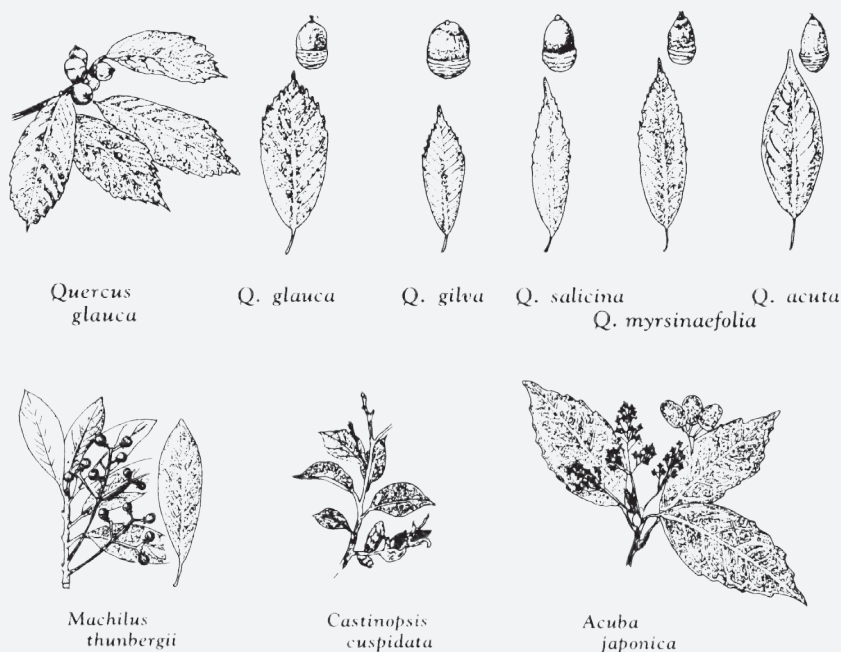
The temperature measurements (jagged line above) show variations in sea surface temperature (SST) as ascertained by oxygen isotope ratios.

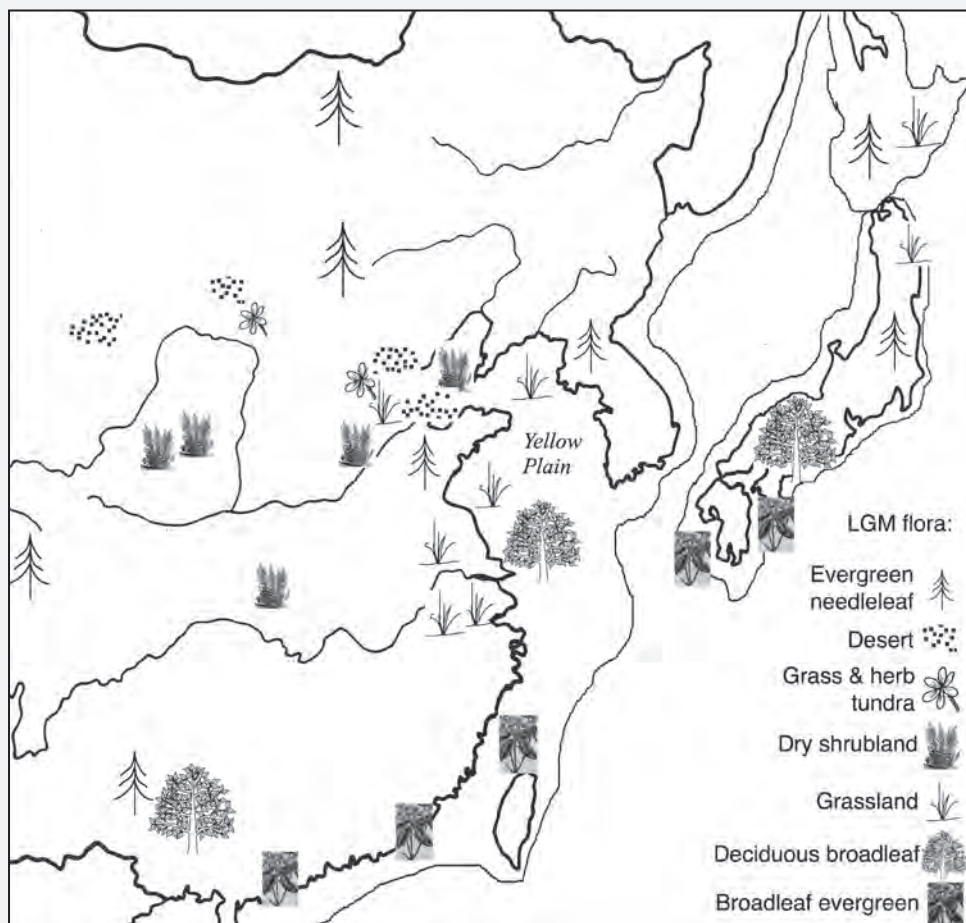
BOX 4.2 Flora and sea levels in the Last Glacial Maximum

Reconstructions of floral zones are fundamentally based on pollen occurrences of different plants; these can be recovered in geological corings of wet sediments because little pollen survives for long on dry land. Pollen cores provide information on changing forest and plant compositions, but by definition, such cores are few and far between – usually taken from lakes – so extrapolating between them is risky. Also, any particular locale's pollen record is composed of near and distant plants, so a great variety is often represented. Finally, the combination of plants changes subtly over the landscape depending on the water supply, altitude, and plant tolerances.

Thus, the broad areas often designated as 'steppe', 'temperate forest' etc. on some flora maps mask local variation. The information presented here for the China Mainland is based only on individual pollen core information, though in a vastly simplified form; no boundaries are drawn because the character of the intervening spaces is unknown. The complicated interdigitation of floral zones can be seen in the Bohai Bay region, part of the Yellow Plain during the lowered sea levels of the LGM. There, desert was bordered by some tundra, *Artemisia* shrubland, temperate grassland, and conifer forest in the mountains of the Shandong peninsula.

For the Japanese Islands, the floral zones were well ordered with open coniferous forests and grassland in northeastern Tohoku and eastern Hokkaido, grading to cool temperate coniferous forest from western Hokkaido and Tohoku into the Japan Alps, then temperate mixed forest throughout the western archipelago, and broadleaf evergreen mixed forests around the southern edges of the expanded landmass exposed during low sea levels. Broadleaf evergreen species include:





Ardisia
crenata



Camellia
japonica



Cleyera
japonica



Cinnamomum
japonicum

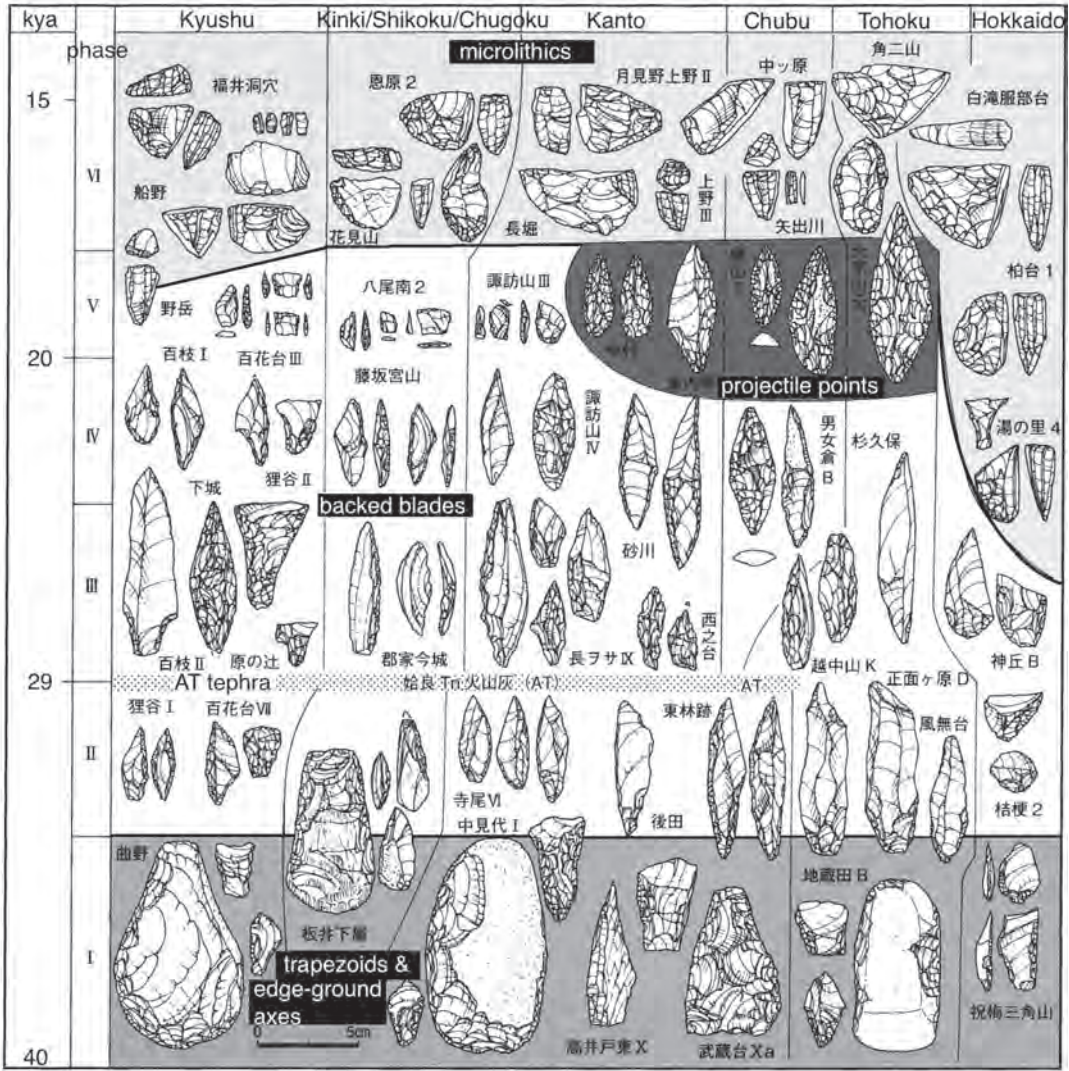


Figure 4.3 Upper Palaeolithic sequence of industries in Japan

The chart moves up with time, beginning from 40kya at the bottom and ending at the Holocene boundary at the top. The important industries are noted in English, with trapezoids and edge-ground axes the earliest, followed by backed blades; note that bifacial projectile points are limited in time and space. Microblade usage began in Hokkaido, one of two gateways to the continent (the other being Kyushu).

Tibetan Plateau and Qinling Mountains. Though humans may not have abandoned the northern landscape entirely, settlement above 41°N was extremely rare (see 40th parallel in Figure 4.1).¹⁷ Thus, we should not expect to find much archaeology in the northern and northeastern China Mainland, the northern Korean Peninsula, or the northern tip of Honshu, Hokkaido and Sakhalin during the LGM. South of the 40th parallel, the plains were occupied by steppe grasslands, while temperate forest expansion in hilly areas pushed the sub-tropical broad-leaved evergreen forests and tropical rainforests farther south. Excavations at the Dadiwan site in the Wei River valley indicate that the central Mainland landscape might have been very sparsely occupied during the LGM.¹⁸

After 19 cal.kya, the sea level rose rapidly, flooding the Yellow Plain (drowning multitudes of Palaeolithic sites) and turning the Japanese landmass back into an archipelago and the lake back into the Japan Sea. Temperate plant communities moved north again while megafauna¹⁹ went extinct. It is in this post-LGM interval of the Late Pleistocene that ceramics first appeared both on the Mainland and in the Japanese Islands, and people began to focus more on plant foods. The early occurrences of these harbingers of the Neolithic are rapidly changing the way we think about the division between the Palaeolithic and Neolithic.

Within East Asia, the Upper Palaeolithic has been most intensively researched in Japan (Figure 4.3, Appendix F), where stone tool assemblages have now been closely correlated with climate changes.²⁰ From these data, the Japanese Palaeolithic is now considered to have ended considerably before the end of the Pleistocene, with the appearance of ceramics between 17 and 15 cal.kya, thus initiating the Incipient Jomon period.

New lithic strategies

Significance of prepared-core technologies

Given the scarcity of habitation sites and fossils for the Upper Palaeolithic, research has focused on stone tools. The appearance of prepared-core technologies, which took hold across the northern Mainland and Pen/Insular regions, not only represents new lithic traditions but also the movement of peoples from western to eastern Eurasia. Traditional core-and-flake^v tool kits continued to be used throughout East Asia, but these were overlain in the north by the introduction of blade technology via Siberia and Mongolia after 43kya,²¹ possibly brought by new peoples (*Homo sapiens sapiens*) traversing northern Eurasia. Blades are the hallmark of the Eurasian Upper Palaeolithic and have been intensively researched, often to the exclusion of other cultural materials.²² However, they are not the only prepared-core technology product in East Asia, as revealed by the Setouchi Technique, developed in the Inland Sea area for use on intractable andesite (BOX 4.3, Figure 4.4).

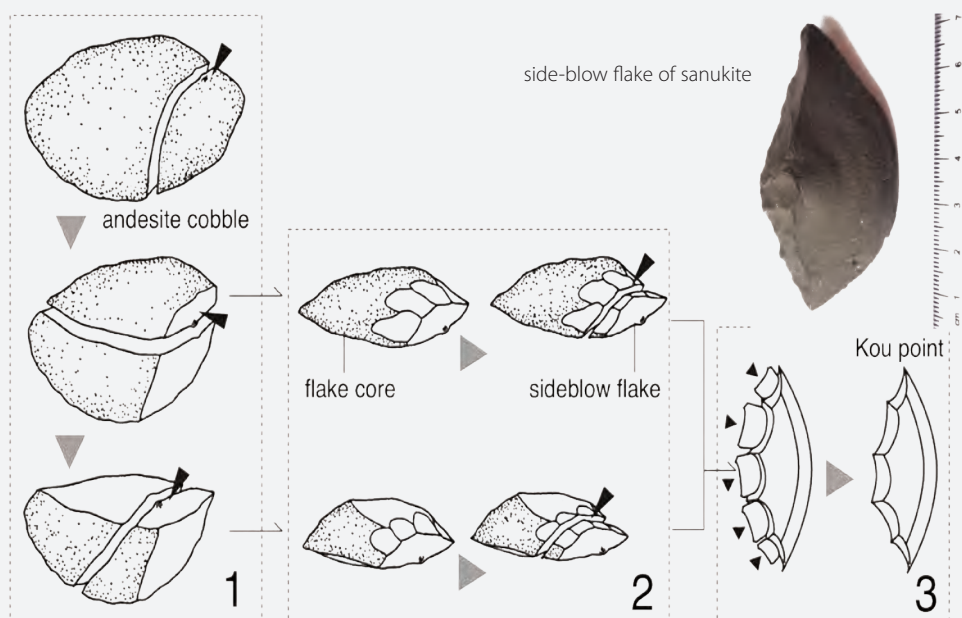
Core-and-flake and blade technologies co-existed in the north into the Holocene, but blade-making failed to penetrate into the southern Mainland though the border did shift southward through time.²³ Morphological studies of Terminal Pleistocene skeletal remains support the idea of northern and southern physical types,²⁴ but it is not

^v A new term 'flake-and-shatter' has been introduced for the North Mainland Upper Palaeolithic non-microlithic industries (Bettinger *et al.* 2010).

BOX 4.3 The Setouchi Technique, prepared-core production of side-blow flakes

In contrast to blade technology, a different kind of prepared core was developed in western Honshu with roots in the Early Upper Palaeolithic: the side-blow Setouchi Technique allowed production of wide, wing-like flakes from a rather intractable andesite called sanukite in the Inland Sea corridor. Such flakes were often retouched to make a projectile point, called Kou points (but commonly referred to as 'knives' or 'backed blades'). The industry developed in the Inland Sea region early in the LGM and spread throughout the Japanese Islands except for northern Tohoku and Hokkaido.

- Process 1** a cobble is shaped to provide large flakes that are then used as cores
- Process 2** the edge of the flake-core is trimmed to provide a spread-winged shape; a wide side-blow flake is then detached
- Process 3** the flake platform is then removed to sharpen the edge; the flake can then be used as a Kou point



appropriate to attribute stone-tool types to particular human groups without clear fossil/skeletal evidence. Moreover, the differential use of these tool kits was probably more related to the particular ways in which natural resources were exploited. Stone-tool usage in East Asia does not strictly follow the Western notions of a succession of Modes,²⁵ and the use of core-and-flake technologies by modern humans certainly does not fit into the Western category of Mode 1. Thus, we await a more flexible and locally descriptive scheme, while recognizing that core reduction technology (i.e., how flakes were struck off cobbles) does not address what tools were finally made from flakes (or cores) and how they were used in subsistence activities.

Nevertheless, the importance of prepared-core production in assessing human development is substantial: it required logistics for procuring fine-grained raw material (andesite, siliceous shale, chert and obsidian) to better control the flaking process – rather than expediently using whatever rock was at hand (often vein quartz or quartzite). This requirement led to the development of procurement networks and/or long-trek expeditions to obtain raw materials.²⁶ Even in the southern Mainland among core-and-flake tool users, good-quality raw materials were obtained from a 30–40km distance, but procurement distances have mainly been researched on obsidian – a cryptocrystalline volcanic glass. Obsidian resources in Japan number more than 900 locations,^{vi} concentrated in western Kyushu, central Honshu, and from northern Tohoku into Hokkaido (see Figure 4.4); among those 80 are known archaeological resources.²⁷ Identification of obsidians from several central Honshu sources revealed that they were being distributed over 50–150km distance in the Early Upper Palaeolithic (EUP).²⁸ Obsidian from the archipelago was brought into the Korean Peninsula by 28 cal.kya, and Hokkaido obsidian found in Sakhalin dates to the LGM.²⁹ In the terminal Pleistocene, obsidian on the Peninsula was sourced mainly from Mt. Paekdu yet also from the Japanese Islands from up to 800–1000km away.³⁰ Such long distances imply considerable mobility and/or social relations among widely spread groups.

Blade varieties and assemblages

Blades are defined as flakes that are more than twice as long as they are wide and with parallel sides (Figure 4.5).^{vii} Though known from the Middle Palaeolithic in western Eurasia and Africa, they became widely used in the Upper Palaeolithic after 45kya. The Shuidonggou

^{vi} See the Obsidian Lab maps of the International Association for Obsidian Studies (2014).

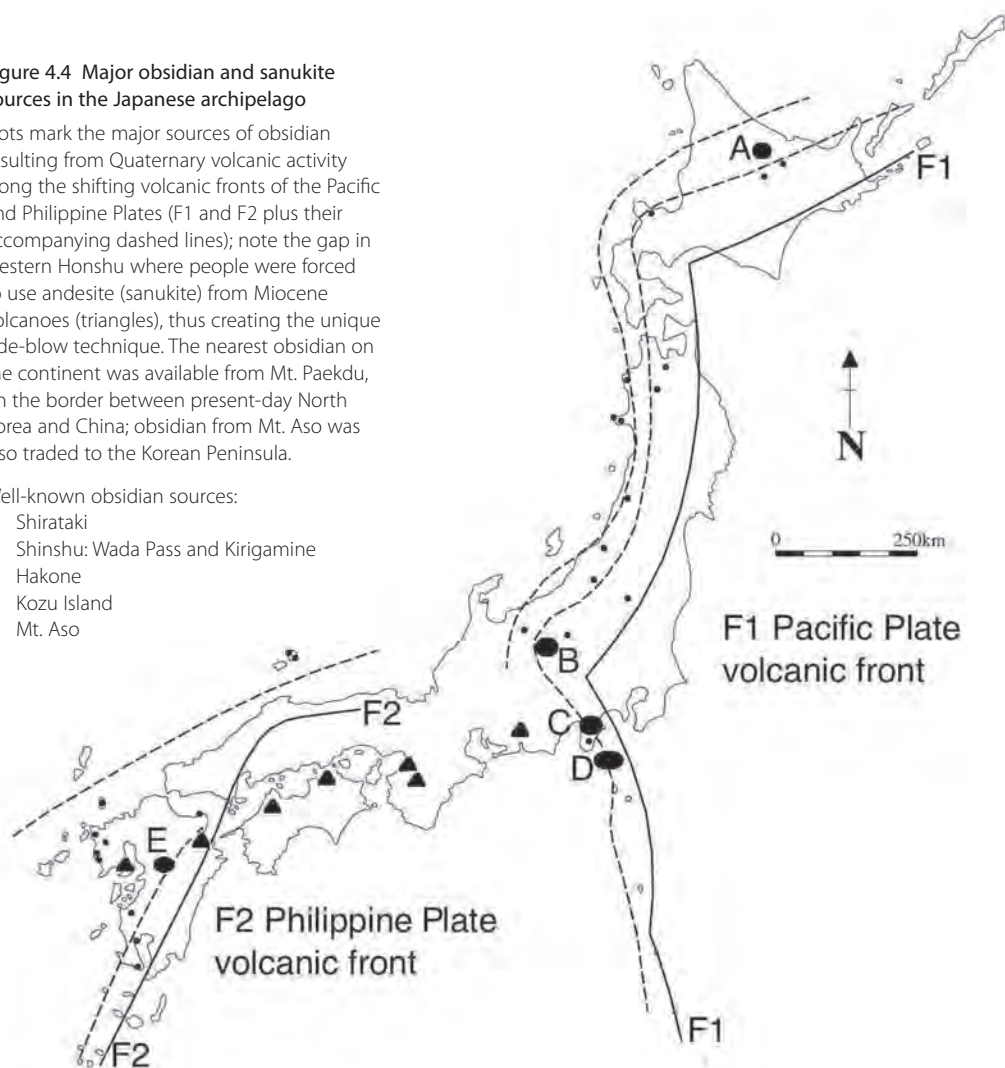
^{vii} Some use the ratios 2.5:1 or 4:1 length vs. width (Bar-Yosef & Kuhn 1999).

Figure 4.4 Major obsidian and sanukite sources in the Japanese archipelago

Dots mark the major sources of obsidian resulting from Quaternary volcanic activity along the shifting volcanic fronts of the Pacific and Philippine Plates (F1 and F2 plus their accompanying dashed lines); note the gap in western Honshu where people were forced to use andesite (sanukite) from Miocene volcanoes (triangles), thus creating the unique side-blow technique. The nearest obsidian on the continent was available from Mt. Paekdu, on the border between present-day North Korea and China; obsidian from Mt. Aso was also traded to the Korean Peninsula.

Well-known obsidian sources:

- A Shirataki
- B Shinshu: Wada Pass and Kirigamine
- C Hakone
- D Kozu Island
- E Mt. Aso



site in the northern China Mainland is considered the type site for blade production, though it is not the earliest.³¹ Analyses of the Shuidonggou blade assemblage indicate a close relationship with sites in Mongolia and the Siberian Altai, considered the source area for technological transfer into northern East Asia. Some northern sites and the whole of the southern Mainland maintained their core-and-flake technologies despite the advent of blades.

Blades come in three sizes: large (macroblades), small (bladelets), and tiny (microblades); often discussion revolves around whether elongate flakes are 'true' blades, or whether bladelets are microblades.³² Shuidonggou already showed cores and flakes that approximated microblade production at 29kya, but microblades appeared on the

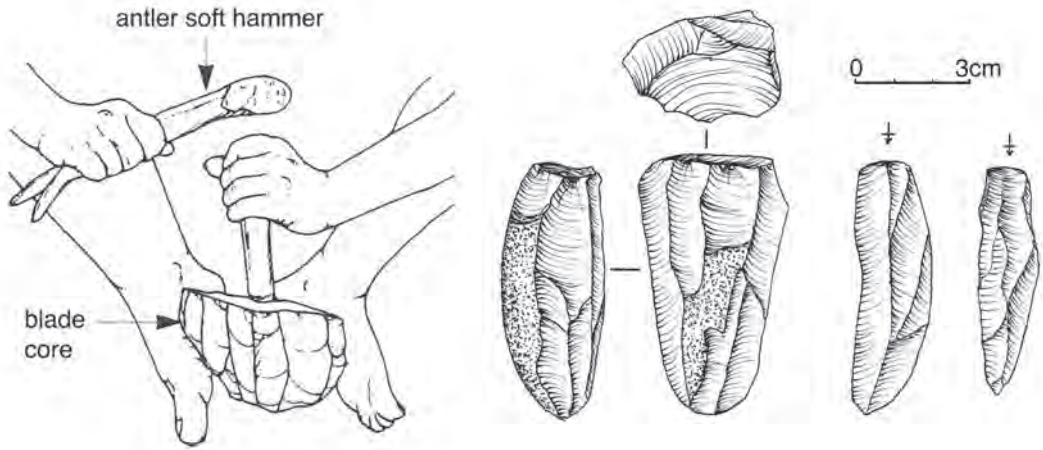


Figure 4.5 Blade production technique

Left: idealized sketch of indirect percussion on a prepared blade core with a soft hammer made of antler.

Right: actual blade core (three views) and two blades; arrows show the striking direction.

Korean Peninsula possibly as early as 28–26kya direct from Siberia, and from Siberia into Hokkaido by *ca.* 23kya.³³ They then became the dominant insular industry between 20 and 16kya, but were thereafter replaced by bifacial points. These new datings debunk previous understandings that microblades were an evolutionary advance over blades and that they dated only to the Terminal Pleistocene. The development of microblades is now thought to have facilitated hunting in cold climates,³⁴ and yet their use continued into the Neolithic and even early Bronze Age in the northeastern Mainland. Today, obsidian microblades are used for eye surgery! They are 100–500 times sharper than a razor and 210–1050 times sharper than a scalpel.³⁵

To detach a flake having blade dimensions from a core requires careful preparation of the core to guarantee length, control width and minimize breakage. It is apparent from Shuidonggou that the western Middle Pleistocene flat-face core (Levallois) technology was adapted to make blade flakes: 80 flat Levallois-type blade cores and 402 Levallois blades were recovered from the site. In addition, 1 microblade, 66 bladelets and 4 microblade cores were accompanied by flakes attributed to 7 non-microblade lithic types.³⁶ The site also yielded 77 core tools (e.g. choppers, chopping tools) and many tools made on flakes (end scrapers, side scrapers, and burins) – emphasizing that blades were always used together with other core-and-flake type tools.

Many of the tools made by prepared-core production were presumably hafted – that is, attached to a shaft as projectile points (spear, arrow) or inset into a handle (scrapers, knives). Microblades were generally too small to use individually; the tiny, long, thin flakes (<5×1cm) were most likely used in composite tools, such as the bone handle bearing incised decoration from Donghulin (11–9 cal.kya), inset with several microblades to form a knife.³⁷ Spears or arrows

made of wood or bone with inset microblade edges are thought to have reduced the risk of tool damage in cold weather compared to single-stone points.³⁸

Microblades became popular particularly after the LGM, when northern faunal resources are thought to have been scarce, requiring travel and on-the-spot tool production and repair enabled by carrying pebbles or bifacial blanks as cores (Figure 4.6). Such core ‘curation’ is thought to have allowed a greater hunting range, as hunters were not tied to lithic source areas.³⁹ Different microblade traditions developed in the central and northern Mainland.⁴⁰ As with blades, microblade production did not extend into the southern China Mainland; the boundary shown in Figure 4.1 divides microblade assemblages in the north from core-and-flake assemblages still being used in the

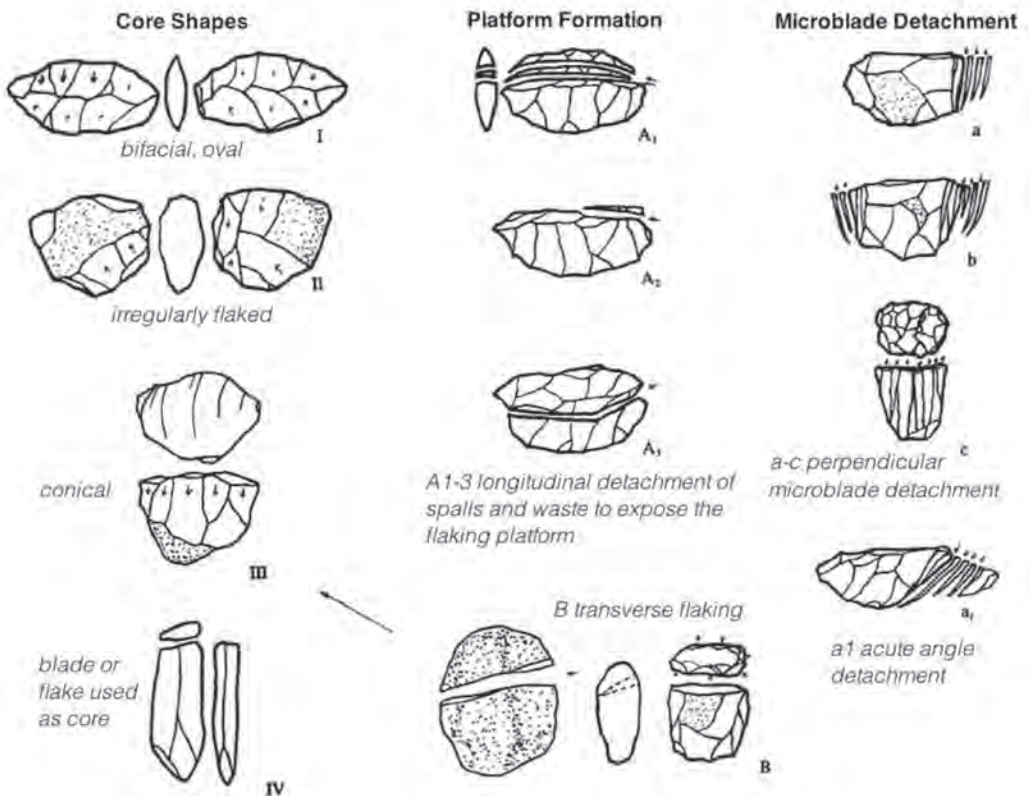


Figure 4.6 Microblade production variables

Microblades can be produced in several ways depending on the manipulation of core shape (I–IV), methods of creating striking platforms (A–B), location of blade detachment (a–c) and angle of detachment (a–c perpendicular; a₁–c, acute, only a₁ shown here). Combinations thereof generate 76 ways of making microblades! Many of these ways have formal ‘type’ names (for example, the Yubetsu technique, consistent with A₁), while others are wholly hypothetical. Six microblade core types have been identified for China, and seven for Hokkaido alone. Factors affecting how microcores are flaked may be culture (learned behavior), skill level, and type and availability of raw material.

south. The more general availability of resources and possibly a more sedentary lifestyle in the southern forests might have negated the need for a portable, maintainable tool kit.⁴¹

It is a mistake, however, to think that microblades were the only tools of use in the north. The Suyanggae site in the central Korean Peninsula illustrates the employment of several tool types including tanged projectile points and endscrapers (Figure 4.7). Because the projectile points are rather small, they were probably used in bow-

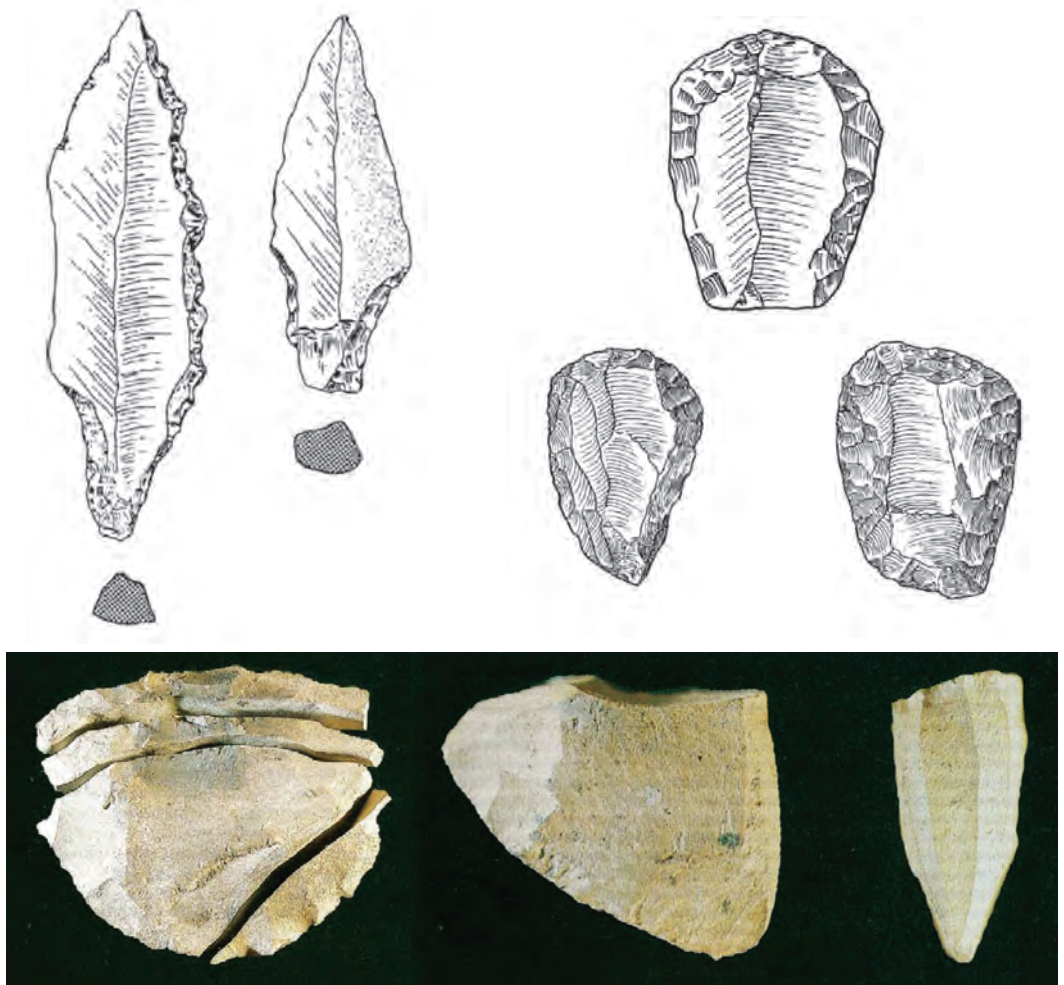


Figure 4.7 Tools from Suyanggae, central Korean Peninsula, dating between *ca.* 20.5 and 16.5 cal.kya

The tanged points (upper left) are 5–7cm long, made on blades with retouched edges; the endscrapers (upper right) are 4–5cm long with steeply retouched edges. These tools reflect substantial modification of shape and edge formation through retouch flaking; both show some standardization in presentation, suggesting that a ‘mental template’ lay behind their production, rather than using any old flake for the job at hand. The vast majority of Suyanggae tools (88%) are of shale rather than obsidian – including the microblade cores (photo). The core at bottom center is 6.4cm across and 3.7cm thick – as shown on the right with blade scars running down the flaking face.

and-arrow hunting rather than for spears. Scrapers are particularly useful in hide preparation; these endscrapers display the steep angle typical of the cutting edge (up to 70–80°), which prevents it from cutting the material as it is scraped and helps lift off the unwanted fat or hair from the animal skin.

At the end of the Pleistocene, people in the Japanese Islands stopped using microblades in favor of bifacially flaked tanged points. Research in the Levant suggests that the versatility and portability of microblade tools became redundant as people settled down into predictable routines;⁴² this trend has also been documented for the archipelago from the LGM, as hunting territories in southern Kyushu shrank and features of sedentism appeared.⁴³ As the climate warmed, Incipient Jomon people traveled less in their hunting routine, used a greater variety of local materials *less* economically (more expediently) for tool production, and focused more on increasingly available foods in smaller territories.⁴⁴ The difference between these mobile long-range (microblade) and more sedentary short-range (tanged-point) subsistence strategies illustrates the change-over from opportunistic forager economies to organized collector economies at the end of the Pleistocene.^{viii}

What were they hunting?

It is assumed that as the climate turned colder in pre-LGM and large game animals moved southward to occupy the growing grasslands and steppe of the exposed Yellow Plain, Palaeolithic peoples became accomplished hunters with their new blade-tipped weapons. What they were hunting can be determined in two ways: by frequency of occurrence of particular species, or by butchery marks on the bones. The problems are: there are so few sites where bones have been recovered – especially from the acidic soils of the Pen/Insulae – nor are there yet enough data to postulate patterns of exploitation.

The peat beds at the Hanaizumi site in the Japanese Islands, dating 36–28kya, hosted fluvially deposited faunal remains; 88% belonged to bison, a grassland grazer, with a few bones bearing cut marks clearly related to butchery.⁴⁵ The dominance of horse and gazelle remains at Shiyu on the northern Mainland at 28kya is interpreted to be a result of human selection of species;⁴⁶ the bones not only showed evidence of butchery but also modification into tools. At Zhoukoudian Upper Cave at 29kya and Xianrendong in the southern Mainland, over 90% of the faunal remains were deer.⁴⁷

^{viii} Binford's 'forager–collector' spectrum is now used by Habu (2004) and Liu & Chen (2012).

At the Kashiwadai I site, where microblades first appeared in the archipelago around 20kya, eroded ungulate bones were found in hearth structures,⁴⁸ presumably as food remains.

The animals mentioned above are only a small selection of the possible faunal food sources. In the northern Mainland microblade sites, a wide variety of Palearctic fauna were found in association with stone tools – antelope, gazelle, boar, deer, ox, rat, fox, ostrich, mouse, wolf, horse and onager.⁴⁹ South of the Yangzi River, Yuchanyan Cave occupied throughout the Terminal Pleistocene yielded deer, boar, other small mammals, fish, tortoises, birds including waterfowl, and shells;⁵⁰ other sites revealed the Oriental faunal components of panda, straight-tusked elephant (*Stegodon*), rhinoceros, tapir, bamboo rat, porcupine, and water buffalo. Large mammals – such as mammoth, straight-tusked elephant, horse, moose, bison, aurochs, bear, and giant deer – were present in the Japanese Islands until their extinction around 20kya at the height of the last glacial.⁵¹ Obviously, the forests and steppe were rich in animal life, but is not clear from the archaeology how many of these were actually hunted. Despite bones having survived far better on the China Mainland than in the Pen/Insulae – due to the latter's more acidic soils and general lack of karst regions for cave occupation – few faunal assemblages have been thoroughly analyzed.

Yet, other artifactual evidence adds to our knowledge. Initial use-wear analysis of endscrapers from Hokkaido prior to 20kya indicates their employment for hide processing.⁵² Some of the earliest ceramic pots in human history, excavated at Yuchanyan and Xianrendong cave sites, were apparently used to process bone marrow and grease.⁵³ And at the Hatsune-ga-hara site in the Japanese Islands, a series of 56 pit-traps were excavated from underneath (before) the AT-tephra (29 cal.kya).⁵⁴ There, three lines of pit-traps spanned a narrow hill slope with steep drop-offs on both sides, suggesting that game was driven down the slope into the pits. Measuring 1.5m in diameter and equally as deep, the pits were just big enough to catch small deer or boar. These medium-sized animals have previously been thought to have only been targeted in the Holocene, when they became the main source of terrestrial protein.

A mobile lifestyle

Actual habitation remains for the Upper Palaeolithic are extremely scarce and ephemeral, encouraging the view that Late Pleistocene East Asians were mobile hunters. Several types of remains are identified as possible dwelling structures: scatters of stone tools and debitage 2–3m in diameter; burned cobbles or soils indicating hearth

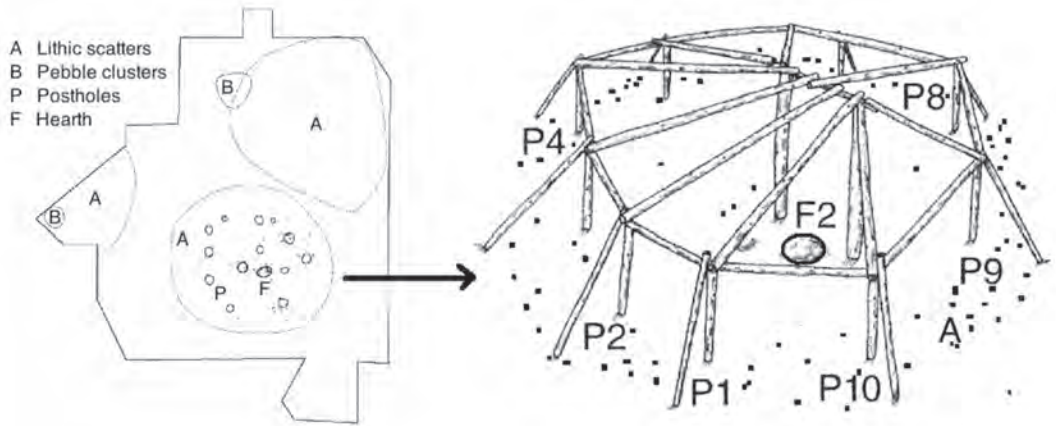
locations; circles of cobbles thought to be tent weights; and postholes arranged in circular patterns. At the Tachikiri site on an island off the southern coast of Kyushu, 14 hearths date to *ca.* 34–33kya.⁵⁵ When such features occur in combination, as at Sokchang-ri on the Korean Peninsula,⁵⁶ it strengthens the proposition that the hearths, cobble circles and postholes represent dwellings, not just activity areas. It is perhaps significant that similar structures exist at Sokchang-ri and Tana-Mukaihara in the Japanese Islands (Figure 4.8),^{ix} both dating within the LGM; the cold conditions might have spurred construction of more substantial dwellings than otherwise used by mobile hunters. Several such Late Palaeolithic stone circles have been found on the Korean Peninsula and the Japanese Islands,⁵⁷ but their use is yet unknown – as with those on the Mid-Pleistocene China Mainland noted in Chapter 3.

On the other hand, clusters of lithic scatters (as marked in Figure 4.8) that occur in some sites without habitation evidence are interpreted as reflecting seasonal gatherings of groups who probably pursued independent activities the rest of the year, the latter indicated conversely by sites with few artifacts.⁵⁸ The dense scatters, called ‘blocks’,^x are typically 2–4m in diameter, consisting of stone tools, flakes and cores; often lithics from different block areas are refittable, indicating shifting manufacturing loci. Multiple blocks may occur in circular arrays up to 20m in diameter, but as with stone circles mentioned above, there is no consensus as to what either the blocks or the clusters represent: Tent spaces? Camps? Lithic processing areas?

Several clusters of Late Upper Palaeolithic sites are known in the northern China Mainland, confined to river basins or along river banks: at Xiachuan (16 localities), Shizitan (25 localities), Hutouliang (10 localities), and Longwangchan (one of 19 localities).⁵⁹ Xiachuan, dated to 23–16cal.kya, yielded 78% blade tools, 20% microblades, and querns – suggesting both animal hunting and plant gathering in the coldest stretch.⁶⁰ In the south, numerous Late Pleistocene sites have been discovered along the Yangzi due to surveys and excavations for the Three Gorges dam construction. These are the first inklings of settlement patterns in the East Asian archaeological record, the implication being that the sites are the remains of mobile hunters who frequently changed their area of activity within a fairly restricted geographical region.

^{ix} Because thermally altered obsidian and sediments were found in or near some postholes, Sakashita (2011) argues they were used as hearths.

^x The English word ‘block’ is transliterated into Japanese but used in an entirely different way from the English meaning.



Harbingers of the Neolithic

It used to be thought that everything characteristic of Neolithic life started in the Holocene, after the end of the Pleistocene – now dated to 11,600 years ago. Currently, several lines of evidence suggest that individual innovations characteristic of the East Asian Neolithic actually began in the Late Pleistocene, both before and after the LGM. Changes in climate might have triggered some harbinger innovations, putting stress on natural resources and stimulating human responses to these changes in both climate and environment (BOX 4.4). Some consider these innovations as part of ‘neolithization’;⁶¹ but some particular developments were short-lived and abandoned before being re-adopted in the Holocene,⁶² while others served an early purpose unrelated to their use in the Neolithic. Moreover, the very term ‘neolithic’ is now being challenged as to its appropriateness and efficacy in describing human development across East Asia.⁶³

In the East Asian Upper Palaeolithic, we now have evidence for the occurrence of several technologies usually assigned to the Holocene Neolithic: groundstone technology, shellfish collecting, pottery-making, and plant manipulation itself. These have revolutionized our understanding of the Pleistocene–Holocene transition to the point that western models of the Palaeolithic/Neolithic divide are no longer applicable to East Asia.

Edge-ground axes

Edge-grinding – considered the first step in developing groundstone technology – is attested at 224 sites in the Japanese Islands between

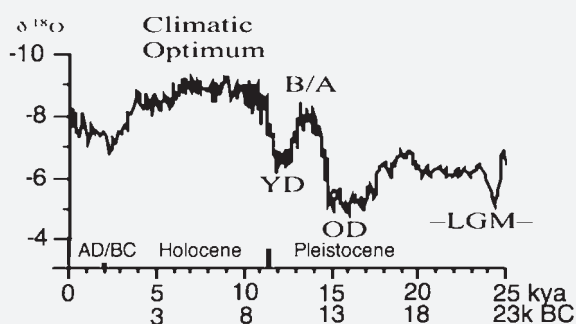
Figure 4.8 Hut and lithic scatters at the Tana-Mukaihara site, Kanto region, dated to the end of the LGM at 19.7–19.2 cal.kya

The pebble circle (A) outside the hut postholes (P) has an internal diameter of ca. 7.5m; it consisted of cobble tools and debitage. Tools at the site belong to the ‘point-tool industry’ and include ovate bifacially flaked points, backed knives, scrapers, and burins. Heat-treated obsidian artifacts have been recovered from the hearth (F) and postholes P8 and P10; these have raised the question whether the postholes themselves were used as hearths at some point, but possibly the holes were filled with lithics as stabilizers when setting the posts.

BOX 4.4 Climate change from the LGM to the present day

Temperature and sea level changes follow oxygen isotope ratios, as compiled here from limestone deposits in southern Chinese caves. The record conforms very well to the European succession, and European terms for climatic 'events' are increasingly being used to frame post-LGM developmental questions in East Asian research.

Temperatures began to rise 20,000 years ago, causing rapid deglaciation, then immediately reverted to a cold period, the Oldest Dryas (OD). Colder post-LGM periods are marked by lower temperatures, dry conditions and dusty continental interiors. Temperatures rose to a new high in the Bølling/Allerød period (B/A) which sandwiched the Older Dryas phase (not shown) between B and A, then dropped again in the Younger Dryas (YD), the last phase of the Pleistocene. The renewed warming at 11,600 years ago (9600 BC) marks the Pleistocene/Holocene transition. The period called the Climatic Optimum during the Early and Middle Holocene is based only on high temperatures, but precipitation is a more important factor for East Asia.



Deglaciation brought gradual flooding of the Yellow Plain and Seto Plain, drowning many Palaeolithic sites. At the start of the Holocene sea levels had risen 80m from their LGM lowstand but were still 40m or so lower than today. Between 4000 and 2000 BC, relative sea level rose up to 6m higher than today, flooding some current coastal areas; this marine incursion is called the Jomon or Holocene Transgression. Plains formed via the deposition of eroded materials during the transgression and then their exposure when the sea receded.

38 and 32 cal.kya, matching the early dates for edge-grinding in Australia at *ca.* 35.5 cal.kya.⁶⁴ Edge-ground tools are also known from Late Palaeolithic microlithic sites on the China Mainland and Korean Peninsula.⁶⁵ They are attested in the northern China Mainland until 12kya and the southern Mainland between 14 and 9kya, with fully polished tools prominent thereafter.⁶⁶

The original definition of 'Neolithic' (new stone) was based on the technology of taking chipped stone tools and rubbing the flaked surfaces on a grindstone or grinding slab until smooth, giving a fully polished surface. Different types of rock give a coarse polish or a fine polish – the latter being particularly important in forming

beadstone ornaments. The fact that this groundstone technology was not limited to the formal Neolithic period but was invented in the Pleistocene rather turns the traditional concept of Neolithic on its head.

Use-wear analysis of edge-ground axes/adzes from Japan indicates hide scraping and woodworking such as perhaps clearing forest, building dug-out canoes, and felling timbers for huts.⁶⁷ In the Japanese Islands there is an unexplained hiatus in edge-grinding between 32 and 16kya, during the coldest period of the Late Palaeolithic. It is tempting to correlate this with the retreat northward of certain types of forest, but studies show Japan was not deforested in the LGM (see BOX 4.2). A different kind of edge-ground tool termed the 'Mikoshiha adze' – a thick tool with a humped back and beveled edge – became particularly popular in northeastern Honshu after 16kya, and groundstone artifacts were ubiquitous in Kyushu in the Terminal Pleistocene.⁶⁸ Nevertheless, not until Early Jomon were axes and adzes fully polished.

Plant utilization

The reliance on plant foods has previously been considered a Holocene phenomenon, with game hunting viewed as the main Palaeolithic subsistence activity. However, both artifactual and biological forms of evidence for plant usage are increasing.

In the southern Kyushu islands, grinding slabs, probably used for plant food processing,^{xi} occur in quantity as early as 30kya,⁶⁹ while similar tools have been found together with plant remains at several Terminal Pleistocene sites, especially from limestone cave sites in southern China.⁷⁰ Both southern Kyushu and the southern Mainland were locales where broadleaf evergreen forests existed even in the LGM (see Box 4.2) and so might have been exploited by similar strategies.

Grinding stones have also been recovered from northern Mainland sites as early as 22–20kya during the LGM.⁷¹ They could have been multifunctional: for processing plant foods, to put a ground edge on tools, for making bone tools,⁷² or even to grind pigments. But at the Xiachuan site (23.9–15.4kya), grinding slabs and handstones may particularly have been used to process plant foods because they are accompanied by flakes having 'sickle gloss' on their edges, indicative of harvesting grasses.⁷³ At the Donghulin site (11,000–9000 BC), starch grains of acorn were recovered from grinding stones.⁷⁴

^{xi} Textile fibers have been found in Upper Palaeolithic sites elsewhere in Eurasia (Kvavadze *et al.* 2009), so there is hope of finding such processed materials in East Asia.

One problem in researching Terminal Pleistocene plant use is that attention has been almost exclusively focused on the recovery of rice, one of the annual grasses that proliferated during post-glacial warming. If people were already collecting plant foods, they would have realized the value of the seeds early on and collected them wild. Rice husks and phytoliths were found at Xianrendong and Yuchanyan Cave – the latter yielding more than 40 plant species in total. What these finds means for rice domestication will be examined in Chapter 5, but it seems that the experimentation did not continue through the end of the Pleistocene. A geological coring from the Yellow Plains area – dating to the Terminal Pleistocene phases designated by the European terms Bølling/Allerød (B/A) and Younger Dryas (YD) – revealed that rice husks and phytoliths were present in warmer B/A but such remains disappeared in the colder YD phase.⁷⁵ But it was only one core, so we await further data.

Coastal living

One hypothesis for the Out of Africa 2 peopling calls for migrations along the coastlines of South and Southeast Asia toward East Asia.⁷⁶ This ‘beachcomber’ hypothesis has been criticized for ignoring the difficulties of crossing large river mouths and the lack of good stone resources in lowland alluvial settings. Nevertheless, Australia was settled by boat, and to get from the Korean Peninsula to the Japanese Islands, the Korea Strait always had to be crossed by boat. Boats were used to obtain obsidian from Kozu Island (now 170 miles south of Tokyo) off Honshu already in the Early Upper Palaeolithic.⁷⁷ One drawback of coastal living in the Late Pleistocene had to have been dealing with rapid sea level rise (see Figure 4.2).

Thus, Late Pleistocene people must have been aware of coastal resources, but because many of the early sites occupied during lowered sea level are now flooded, we have few sources of data on the use of marine resources by Palaeolithic peoples. Nevertheless, seashells discovered in the Zhoukoudian Upper Cave indicate coastal exploitation as well as long-distance trade to inland societies.⁷⁸ Liyuzui Cave (*ca.* 24–21 cal.kya)⁷⁹ yielded the remains of freshwater shellfish, suggesting that people on the lowered coastlines during the LGM may have been eating marine shellfish as well. The Terminal Pleistocene sites on the China Mainland, such as Zengpiyan,⁸⁰ have yielded bone harpoons, shells, and shell tools, while the earliest fishing – of salmon – in the Japanese archipelago is attested at the Maedakochi site in the Kanto region, dated to 13 cal.kya.⁸¹

The invention of pottery

Whereas Japan used to lay claim to the earliest known ceramics in the world, that accolade now applies to China. On the Mainland, ceramics and hunting gear occur together at most Terminal Pleistocene sites – not ceramics with grindstones, as we might expect in plant utilization.⁸² These results contrast with the usual assumption that ceramics evolved with increasing plant use in the post-LGM period, but analyses of lipid remains on Incipient Jomon pottery sherds reveal the earliest pottery was used to boil freshwater and/or marine foods: fish stew, anyone?⁸³ In the last decade or so, sites in China documented with pottery beginning during the LGM are the southern sites of Xianrendong (21.7–19.3 cal.kya) and slightly later at Miaoyan and Yuchanyan as well as at Hutouliang in the north. Early ceramic dates for the Russian Maritime region and Japan kick in between 17 and 16kya.⁸⁴ The earliest pottery finds in the Japanese Islands cluster around 14 cal.kya, for example at Odai Yamamoto I, Seiko-Sanso, and Fukui Cave sites;⁸⁵ many occurred together with bifacial points, the Mikoshiba adze, and round, flat stones that are assumed to be querns (Figure 4.9).

From the geographical range and close dating of early ceramic occurrence, it is likely that the idea of pottery-making was spread through sociocultural interactions,⁸⁶ bearing in mind that the Terminal Pleistocene was a period of wide-ranging microlithic hunting. Extreme variation in pottery techniques in the different areas suggests ‘idea diffusion’, with people finding various solutions in materializing this idea of pottery and its uses that had captured everyone’s imagination (Table 4.2). Diffusion of pottery across Eurasia from east to west is increasingly acknowledged, particularly from Siberia to Europe.⁸⁷ This is opposite the direction that blade manufacture spread, and in that case, the technique of pressure detachment of flakes cannot have spread through word of mouth but must have dispersed through actual movement of peoples carrying learned technology, since it requires highly skilled technical knowledge of raw material, complex core preparation, and hand positions for holding the core and detaching the blades.⁸⁸

Thus, several important innovations – groundstone tools, ceramics, plant dependence and shellfish collection – took place before and

Table 4.2 Ceramic formation and decoration techniques in East Asian areas

	South Mainland	Japanese Islands	Russian Far East
formation	rigid molds, paddling	no molds, slab and coil	basket molds
temper	rice, quartz	solid, grass after 8350kya	grass, then sandy clay
decoration	early: relief, then fingernail impression, cord-marking	early: plain, then: relief banding, fingernail impression, cord-marking	late, in Holocene: cord-marking, stamping, incising



Figure 4.9 Incipient Jomon artifacts

In the Japanese archipelago, the climatic oscillations over the Pleistocene/Holocene boundary were met with several material and populational adjustments in Incipient Jomon. During the Bøllering/Allerød phase, textured pottery occurred with all kinds of stone tools – from edge-ground axes to bifacial untanged points of various sizes. From Bøllering/Allerød into Younger Dryas, population contraction across the archipelago is evidenced by a decrease in site numbers; ceramic use declined but was not abandoned despite more mobile hunting with bow and arrow. In the Early Holocene (Preboreal), a new type of tanged scraper appeared (seen in the Uegahira assemblage, right), and stone quern use spread from the south throughout the Islands.

after the LGM, then accelerated into the Holocene. Thus, it is clear that the formal distinction between the East Asian Palaeolithic and Neolithic periods, even using the new Pleistocene/Holocene geological boundary of 11.6 cal.kya, is no longer a valid boundary in cultural development.^{xii} One solution might be to redefine ‘post-glacial’ as meaning ‘post-LGM’ rather than ‘post-Pleistocene’.⁸⁹ If we treated the span of time from 18kya onward as an unbroken seam of human adaptation to the environmental changes shown in BOX 4.4, then the increasingly inappropriate boundaries between Palaeolithic/Neolithic would be overcome.

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^{xii} Jia, P. (2007: 59) provides several examples around the world, including China, where the boundary is drawn at widely varying times.

Chapter 5

Early Holocene Subsistence Patterns
(10,000–5000 years ago = 8000–3000 BC)

The post-Pleistocene period has traditionally been designated the Holocene (Table 5.1), but we might already be living in a succeeding period, the Anthropocene, affected by human impact on our natural world.ⁱ The Early Holocene encompasses the last stages of the warming trend that began in the post-LGM period (see BOX 4.4). It peaked in the period designated Middle Holocene, when temperatures were up to 2°C greater than today, sea levels in many places 2–6m higher, and precipitation greater in many areas.ⁱ Each region of East Asia, however, has been found to have its own unique environmental record of changes in these dimensions. There were dry arid areas, wet areas, and areas of vacillations between the two;² thus, each had its own occupational potential. Combinations of high temperatures and rainfall generally caused a surge of plant life, while high sea levels led to local embayments fostering shellfish growth. People husbanded some of these new resources, which in return responded with increased yields. The resulting stable food sources in a limited territory allowed people to settle down into villages and led, in some cases, to the domestication of several of today’s crops and farm animals. Textured pottery (BOX 5.1) came to be widely used.

This chapter’s primary concern is Early and Middle Holoceneⁱⁱ adaptations to the changing environment – including the creation of the first anthropogenic environment. While domestication issues have most often hogged discussion for this time period, it is ever more apparent that domesticates were unintended consequences of the growing symbiosis of humans with their new Holocene

Table 5.1 Newly proposed formal divisions of the Holocene

The division of the Holocene (our own epoch) into three units is now formally proposed. There is also discussion of establishing a new Anthropocene Epoch accounting for human impact on the environment; proponents, however, cannot yet agree whether industrialization (the last 200 years) or agriculture (the last 8000 years) or even the whole Holocene should define this epoch.

Early Holocene	Middle Holocene	Late Holocene	Anthropocene?
9600–6200 BC	6200–2200 BC	2200 BC to present unless Anthropocene is adopted	?6000 BC~ or ?1800 AD~

ⁱ This period of high temperatures is often referred to as the Climatic Optimum, Holocene Optimum or Hypisthermal.

ⁱⁱ When these terms are used below without the division capitalized (e.g., early), the time referred to is not constrained exactly by the formal designations.

environments. Many plants and animals themselves exploited human settlement and interaction to their own advantage and became transformed in the process. Documenting these mutual exploitation processes without succumbing to teleological arguments about intentional creation of domesticates is one of the challenges.

Settling down

A surprising result of ongoing research across the Pleistocene/Holocene (P/H) boundary is the extent to which people gave up a mobile lifestyle and settled down in the landscape while still relying mainly on hunted and collected food resources. It might be said that settling down is a gradual process of laying claim to the landscape by investing in permanent facilities. Terminal Pleistocene rock art was an initial signal (see BOX 4.1), while grinding stones and ceramics suggest a reduction in mobility (see Figure 4.9): these were heavy objects, difficult to transport. Several sites dating 10,000–8000 BC in the northern Mainland – such as Zhuannian, Donghulin, and Nanzhuangtou – yield querns and ceramics together, many stone and bone tools, firepits and animal bones but no houses so far (see Table 1.1a and Figure 5.1).³ Clear evidence for laying claim to the landscape, though, resides in house-building and village formation regardless of whether these facilities were occupied continuously, seasonally, or reoccupied after long hiatuses. The Korean Peninsula is an anomaly in that there is virtually no evidence of Peninsular occupation during the first four post-glacial millennia.⁴

No doubt because of this more settled existence, the production of ceramics burgeoned across East Asia. For whatever reason(s) pottery was first invented, it quickly performed multiple functions. Most early pots are conical or flat-bottomed, wide-mouthed cooking pots (BOX 5.1-A,F), especially useful in rendering shellfish and nutmeats edible by boiling them. But early on, a considerable variety of ceramic shapes emerged. Narrow-necked pots were particularly suitable for storing liquids (BOX 5.1-G) and small amounts of food within the home. The ceramic chronologies built by archaeologists are the main relative means of dating Holocene sites, usually taking the names of pottery phases from type sites where that kind was first found.

Earliest villages

In contrast to the surface huts constructed during the LGM (see Figure 4.8), the Younger Dryas in southern Kyushu witnessed the development of Incipient Jomon pit-buildings together with grinding stones, outdoor stone-lined hearths, and open pit-hearths

Box 5.1 Textured pottery traditions

Hypotheses abound concerning the origins of pottery: to boil shellfish? to boil animal bones? to boil and detoxify nuts? to cook cereals? Each of these activities became crucial to the exploitation of new Holocene resources. Although the earliest ceramics bore little decoration, all of the main post-glacial cultures of East Asia, regardless of their subsistence base, utilized textured-surface ceramics.

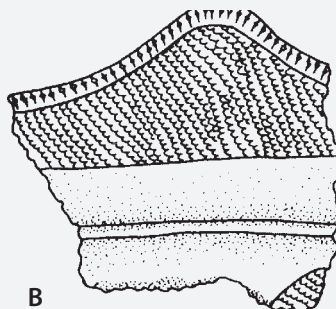
Incipient Jomon thumbnail-size sherds with raised-line decoration were patched together as a bullet-shaped cooking pot (A). Cord-marked (literally, *jōmon*, B), rouletted (C), incised, nail-marked, shell-impressed, and appliqué wares were developed later. Middle Jomon saw the development of exquisite 'teapots', bottles and pedestaled bowls as well as flamboyantly decorated rims (D, E).

Chulmun ('comb-patterned') pottery on the Korean Peninsula (F1) bore incising of short parallel lines, but stamping, punching, grooving and pinching were also used. Classic Chulmun, having three bands of geometric decoration (F2), diffused ca. 3500 BC from the northwest to other areas that had been characterized by raised band pottery. Northern Peninsular sites were always distinguished by flat bases in contrast to the southern conical shapes.

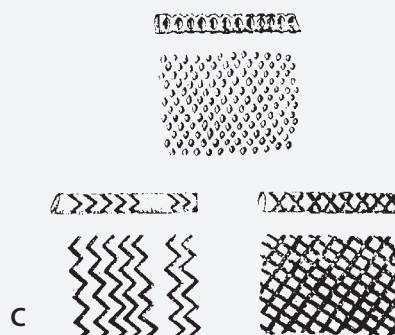
On the Mainland, basic utilitarian pottery was cord-marked (*shengwen*) (G) or surface-picked, often with flat bases. Even after the advent of painted pottery, most ceramics had textured surfaces, a tradition lasting into the early historical periods. Textured pottery of the southeastern coast and islands had related but different decorative traditions in the Yue-Dapenkeng cultures.



A



B



C



D



E



F1

F2



G

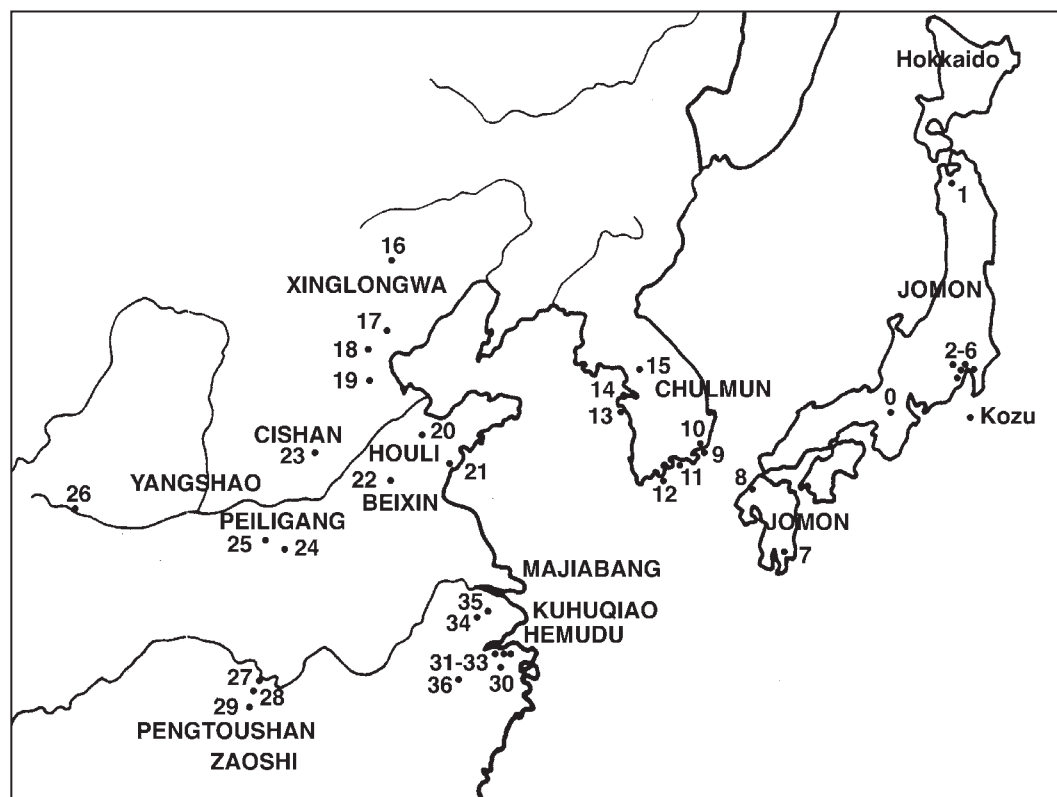


Figure 5.1 Sites mentioned in Chapter 5 and the main Early Holocene cultures (names in Table 5.2 are not included)

Jomon sites in the Japanese Islands: 0 Awazu, 1 Sannai Maruyama, 2 Nittano, 3 Takane-kido, 4 Maedakochi, 5 Isarago, 6 Natsushima, 7 Uenohara, 8 Maebaru

Chulmun sites on the southern Korean Peninsula: 9 Tongsamdong, 10 Pibong-ri, 11 Taepo, 12 Ando, 13 Konam-ri, 14 Taejuk-ri, 15 Amsadong

Neolithic sites on the China Mainland: 16 Baiyinchanghan, 17 Zhuannian, 18 Donghulin, 19 Nanzhuangtou, 20 Houli, 21 Liangchengzhen, 22 Beixin, 23 Cishan, 24 Jiahu, 25 Peiligang, 26 Dadiwan, 27 Bashidang, 28 Pengtoushan, 29 Zaoshi, 30 Xiaohuangshan, 31 Kuahuqiao, 32 Hemudu, 33 Tianluoshan, 34, Caoxieshan, 35 Chodun, 36 Shangshan

equipped with flues.⁵ These built features demonstrate investment in a specific locus for a substantial portion of the year, if not yet year-round. The ventilated hearths, moreover, are interpreted as smoking pits – the first evidence of food preparation for storage. Several Early Holocene villages are known in southern Kyushu. Maebaru, at 11,900–9000 BC, had 24 pit-buildings,ⁱⁱⁱ already present in two size classes (12m², 4m²); these were accompanied by 64 ventilated hearths and 18 clusters of burned rock. Excavations of 1.3ha^{iv} at

ⁱⁱⁱ Semi-subterranean structures are usually called ‘pit-houses’, but not all such structures were necessarily houses, especially with such dramatic differences in floor space; here, the functionally neutral term ‘pit-building’ is used.

^{iv} ha = hectare, an areal unit 100 × 100m = 10,000m².

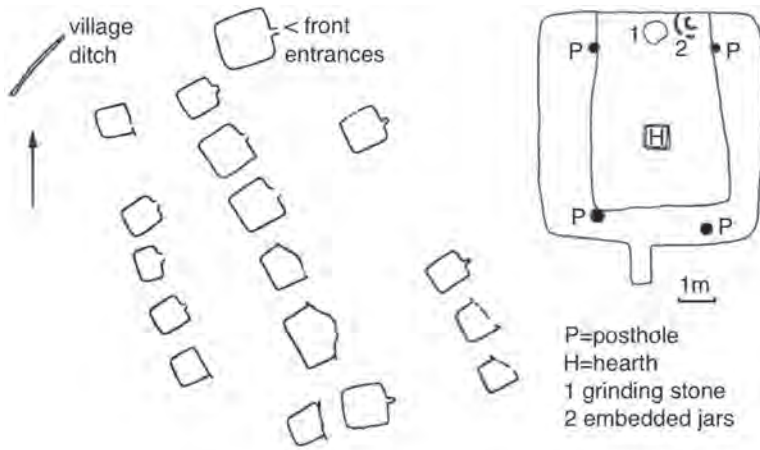


Figure 5.2 Settlements at Xinglongwa and Chulmun culture sites

Upper: The Xinglongwa culture Baiyinchanghan site with village ditch section and square houses laid out in rows. House-plan is in upper right. Microlithic tools were still in use, and walnuts, boar, deer and perhaps fish (taken with notched bone harpoons) formed part of the wild food resources. Xinglongwa culture burials contained figurines, shell ornaments, ceramics, stone and bone tools, a few pig/boar skeletons, and the earliest known jades.

Lower: The Chulmun culture site of Amsadong with round pit-buildings, 6m in diameter and up to 1m deep and equipped with entrances; acorns and horse chestnuts may have been augmented by collecting freshwater shellfish from the nearby Han River.

Both of the above sites yielded chipped and polished stone 'hoes', potentially used for digging plants.

Uenohara revealed 52 pit-buildings, 16 ventilated hearths, and 39 stone clusters representing perhaps four different occupational phases; these were overlain by a pumice layer dating to 10,800 BC, truncating the life of the village. These Terminal Pleistocene villages of southern Kyushu occur in the mixed broadleaf forest zone that later expanded through the western archipelago in the Early Holocene. They currently precede known village development elsewhere by several hundred if not a few thousand years (see Table 1.6).

The earliest known villages on the Mainland are in the south,⁶ dating from 8000 BC. Shangshan, Bashidang and Pengtoushan in the Yangzi Basin have yielded surface buildings and/or pit-buildings, some with hearths constructed of fired earth and clay; among Bashidang's 24 structures, pit-buildings were outnumbered by stilted buildings.⁷ At Hemudu, such structures grew to 23 × 7m and are estimated to have housed 20–30 people.⁸ These small village sites (2–3ha) were accompanied by burials scattered around their peripheries. The Xiaohuangshan site, with rectangular houses up to 14m long, also yielded numerous cylindrical pits, 1m in diameter, which are interpreted as storage pits. Kuahuqiao, at 6050 BC, had one of the earliest ritual structures discovered: an earthen platform

1.6m high of 19 layers accessed by a cobbled path, <1–2m wide.⁹ At *ca.* 5000 BC, Bashidang had a similar ritual platform 0.45m high accessed by four sloping ramps; in the middle of the platform was set a large wooden post accompanied by a water buffalo maxilla.¹⁰

These southern sites were followed around 7000 BC in the central Mainland by large villages at Cishan and Peiligang, and then around 6500 BC by villages in the northeastern Xinglongwa culture (Figure 5.2).¹¹ Of the three sizes of pit-buildings in the Houli culture, the largest (30–50m²) were occupied by 10 to 20 people and the smaller (<30m²) by 6–7 people; small pit-buildings without hearths served as workshops or storehouses.¹² Houli sites also have yielded some of the earliest pottery kiln structures, while firing temperatures of Cishan and Peiligang ceramics is assessed between 800 and 1020°C – already high-fired earthenware.¹³ From this time onward, sedentary villages are also known from the southern Korean Peninsula (Figure 5.2), where Early Chulmun burials and pit-buildings equipped with internal storage pits exist (see Table 1.4).¹⁴

Feedback loops between food and sedentism

Three factors enabled human groups to settle down in the landscape: expansion of food supply through natural and anthropogenic processes, new food preparation techniques, and new storage facilities. These are considered the ‘pull’ factors, while ‘push’ factors might have involved diminished game for hunting. The question of ‘why innovation at this particular time’, however, remains unanswered.

Post-glacial climate change bringing warmer, moist weather certainly enriched the species available for human consumption, but human-induced environmental change also helped. When people clear land for houses, dig pits and ditches, and dump refuse, they are altering their immediate environment.¹⁵ This disturbed area becomes host to certain species that colonize disrupted ecosystems. Indeed, village rubbish middens are thought to be an area where edible plants could be tended,¹⁶ and wild boar might have been attracted to organic wastes. Tending and harvesting these nearby species rather than foraging farther abroad would have allowed people to stay put for greater lengths of time.

New storage technologies allowed these new foods to be preserved across the winter or even from year to year. Storage preparation included smoking and drying foods and parching seeds. Arrays of postholes at numerous Jomon sites are interpreted as drying racks, while the elaboration of cooking hearths into smoking hearths meant that fish, shellfish, deer and boar could have been preserved.¹⁷ Stilted buildings occurring beside pit-buildings may have been storehouses,

and storage pits are ubiquitous – perhaps inspired by the digging of pit-buildings and pit-traps. Thus, the more food stored, the longer the residence and the larger the population, leading to very substantial mid-Holocene villages. The close and continuous habitation, of course, caused problems in regulating social relations – which might be why we see evidence of lineages and clans emerging in the mid-Holocene archaeological record (see Chapter 6).

‘In-between’ societies

The widely published Jomon calendar encapsulates a vision of hunter-gatherers living in a Garden of Eden^v with natural resources available year-round for the taking.¹⁸ The failings of this calendar are: first, not all resources were available in all regions at all times, so the environment was not as rich or homogeneous as implied; and second, the calendar does not consider the minor cultivation of plants. The manipulation of plants in the Jomon leading to some indigenous domesticates is now well known, though these did not play a major role in the diet. A similar situation existed on the Mainland, where the addition of rice and millet to early Neolithic broad-spectrum subsistence regimes did not immediately result in heavy reliance on these crops. Thus, the presentation of early Holocene societies in terms of a dichotomy between hunter-gatherers in the Pen/Insulae and farmers on the Mainland is no longer appropriate.

Instead, there is now recognized a long period of ‘in-between’ societies that practiced food production at a low level whether the species were domesticated or not. Such in-between societies “are neither transitional *to* agriculture nor transitional *from* hunting-gathering”¹⁹ because Early Holocene peoples were not intentionally trying to ‘domesticate’ wild species nor consciously develop ‘agriculture’.

During the human management of food sources, unintended changes in attributes such as size, shape (morphology) and genotype may have shifted to the point where a species is considered domesticated. For plants, this point is referred to as “the fixation of genotypes adapted to cultivation”;²⁰ for animals, morphological change is virtually invisible in some domestication sequences such as boar/pig. In fact, boars and pigs comprise a single species (*Sus scrofa*), and it is very difficult to distinguish their bones without DNA analyses to determine the genotype. The emergence of a fully

^v This is the ‘affluent forager’ model that dominated in the 1990s (see Crawford’s 2008 rejection) and informed CKJ pp. 77–88. No longer are Early Holocene peoples seen as passive collectors but as active manipulators of their environment and as *producers* of their food.

domesticated species is not a quick process but may take several thousand years, during which time wild, tame, 'pro-domesticate' or 'primitive cultivar' forms may all occur together.

A recent report describes domestication as the "evolving mutualism between human groups and plant/animal communities" and notes that trying to pin down the exact moment of domestication within this evolutionary sequence "may not be very useful".²¹ 'Niche construction' was important in bringing about this mutualism:

Species that responded to human interaction with increased abundance of sustenance or some other vital resources could draw people away from other pursuits and into activities that supported their own survival... some species had qualities that so attracted human investment that people became committed to their survival.²²

In a surprising twist of perspective, humans can be viewed as being domesticated *by* plants, becoming tied to the planting and harvesting schedule and the necessity to protect the crops from predation. This brings to mind the old chestnut (sweet or horse?), why would anyone become a farmer if they could support themselves on three to four hours collecting every day?²³ The Jomon provide an example of the wise decision not to become farmers, a decision undertaken for two reasons: first, the plants that respond best to human intervention were generally absent, and second, even when present, the Jomon rejected the investment opportunities in favor of an already satisfactory subsistence system. So both availability and choice were involved in adopting the major East Asian food crops of rice and millet.

The cultures discussed in this chapter are thus not distinguished by their subsistence strategies, which will be termed here 'broad-ranging' food-production systems. 'Broad' implies many resources both wild and domestic – in contrast to more specialized systems focusing on fewer species that were developed in the Late Neolithic Mainland. Before regional overviews, however, let us examine two new habitats that enhanced food availability and encouraged tool innovations among these early villagers.

Exploiting Holocene forests

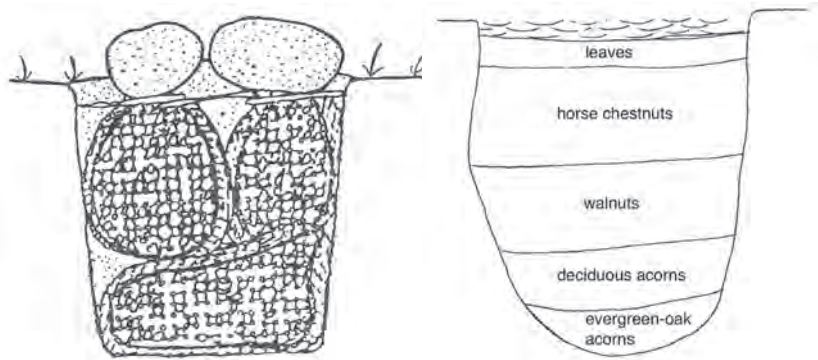
The importance of nuts

Even 30,000 years ago, Palaeolithic peoples in the Japanese Islands were processing nuts in the southern broadleaf evergreen forests.²⁴ With the expansion of temperate forests in the post-glacial period, nuts were heavily exploited across much of East Asia.²⁵ This is clearly due to the capacity of certain species to increase yields if



Figure 5.3 Jomon storage pits

Nut storage in pits began in Incipient Jomon in Kyushu and spread throughout the archipelago as temperate forests advanced northward. Broad-scale excavations for train and expressway lines in Japan have enabled the discovery of off-site features such as these wet storage pits (top) on lowland alluvial plains. Wet pits are often lined or capped with organic materials (lower right), or contain nuts stored in baskets (lower left). Similar wet pits have been recovered at the Early Hemudu culture site of Tianluoshan in the Shanghai Delta region.



encouraged to grow in more open contexts, as around villages.²⁶ Humans are noted “ecological engineers” who do not live *in* forests but in disrupted ecosystems where they are instrumental in helping other species to flourish.²⁷

Some nuts need more processing than others. Those that can be eaten straight from the shell include sweet chestnuts and walnuts. Acorns of the several evergreen oak species have low tannin content (about 1.3–2.5%), which can be extracted by simple water leaching. Horse chestnuts also require detoxification with cold water.²⁸ Many nuts of the temperate deciduous forest have a toxic tannin content (3.2–6.7%), with deciduous acorns requiring tannin extraction through complicated heating and mixing with lye.²⁹ Boiling and detoxifying nutmeats might have led to the burgeoning use of ceramics we see in early Holocene times.³⁰

Grinding tannin-laden nutmeats on stone querns and boiling them in ceramic pots would have made them edible as gruel. Nut flour also went into Jomon ‘cookies’ (or more likely, ‘hamburgers’), made by mixing “chestnut and walnut flour, meat and blood of the wild boar and deer, and wild bird eggs”.³¹ The Jomon used pits

extensively to store nuts (Figure 5.3).³² In the western archipelago, small pits dug off site into alluvial lowlands allowed the nuts to be submerged in the water table, possibly as famine resources. In the northeast, numerous large bell-shaped pits dug into terraces near habitation sites are interpreted as over-wintering facilities.

Figure 5.4 Woodworking tools and techniques

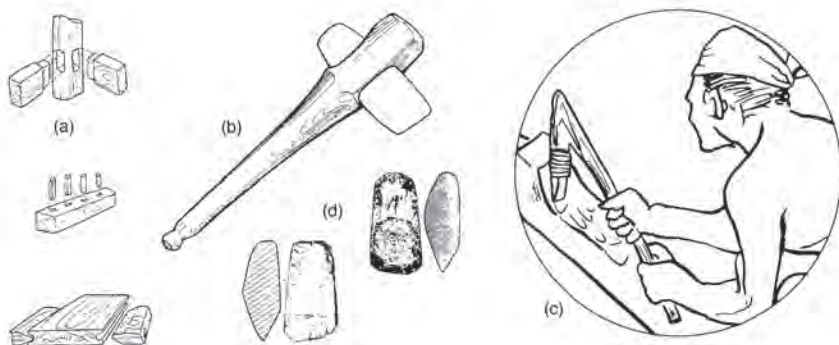
Mortise and tenon constructions (a) at Kuahuqiao and Hemudu show precocious joinery skills. Woodworking tools were made of stone. Ideally, artifacts with symmetrically beveled blades by a slanting edge are termed axes and were hafted with the edge turned perpendicularly to the ground when held upright (b), while those with asymmetrical bevels and a straight edge are termed adzes and were hafted with the edge parallel to the ground (c).

Actual artifacts (d), however, are often difficult to categorize – hence the use of the term ‘ax/adze’. Adze-shaped tools were used to plane and shape timber as shown, but they could also be used to fell trees with a downward stroke in contrast to the sideswing used with axes. Widespread use of timber led to deforestation, but timber rather than stone continued to be used for buildings in East Asia even after the rise of monumental architecture.

Chulmun stone ax/adzes (photo) include gouges with concave edges underneath (leftmost and rightmost); the tools in the middle show use-wear on their lower edges related to chopping or digging.

Timbers, houses and woodworking tools

The new broadleaf forests also provided tree trunks for fashioning dugout canoes, timbers for house construction, and hafts for various tools. The increasing use of wood led to the development of specific woodworking tools, primarily heavy, polished stone tools with beveled edges. The effort put into shaping groundstone tools far exceeded any Palaeolithic tool manufacture but was deemed worthwhile for accomplishing repetitive actions: felling trees, dressing timbers, grinding foodstuffs.³³ Some tools are interpreted as digging implements, used to harvest root crops – though this kind of indirect



evidence of subsistence activities is now eschewed in favor of direct botanical evidence of cultivation. Certainly digging tools were necessary, though, for making house pits, storage pits, and pit-traps. Through time, these tools became fairly standardized and had the functionality of later iron tools.

Pit-buildings have an interior framework consisting of several upright posts supporting a thatched roof that usually reached to the ground and was anchored by posts driving diagonally into the ground (see Figure 5.2). Chestnut was apparently the favored wood for constructing pit-buildings in the Japanese Islands.³⁴ Around the Shanghai Delta, board houses built on stilts have been recovered from coastal sites, where water-logging has aided their fragmentary survival. Many pit-house superstructures have also been wet-preserved, allowing reconstruction of the pole arrangements; at Tianluoshan, poles were stabilized on layers of boards in the bottom of the postholes – an early foundation technique.³⁵ The houses at Kuahuqiao and Hemudu are extraordinary in showing very early development of mortise and tenon joinery (Figure 5.4), and Kuahuqiao has provided examples of early wattle-and-daub (mud plastered on a wooden lattice) construction.³⁶

Living on Holocene shores

The Holocene is noted for a great reliance on marine resources, but this perception is shaped by the fact that earlier shorelines have been obliterated by the post-LGM rise of sea level and Holocene transgression. Late Pleistocene peoples were not averse to eating fish and shelled animals (fish stew in Chapter 4), but today we only have a shoreline that dates from *ca.* 5000 years ago when, at its maximum, the Holocene Transgression flooded considerable land areas that are dry today (Figure 5.5); for example, in the Shanghai delta region, the sea encroached within 40km of present-day Nanjing City,^{vi} now 180km inland from the tip of the delta.³⁷

Anatomy of a shellmound

Shallowly flooded areas provided embayments where shellfish could propagate. People who collected shellfish traditionally discarded the inedible shells in piles near the shores or in middens near their houses (Figure 5.6). Coastal middens contain marine shells, but inland sites such as the limestone caves of the southern Mainland

^{vi} Interestingly, this occurred despite the relative sea level (RSL) at that location being essentially the same as today; the ground surface was lower then and has since been infilled by Shanghai Delta formation.

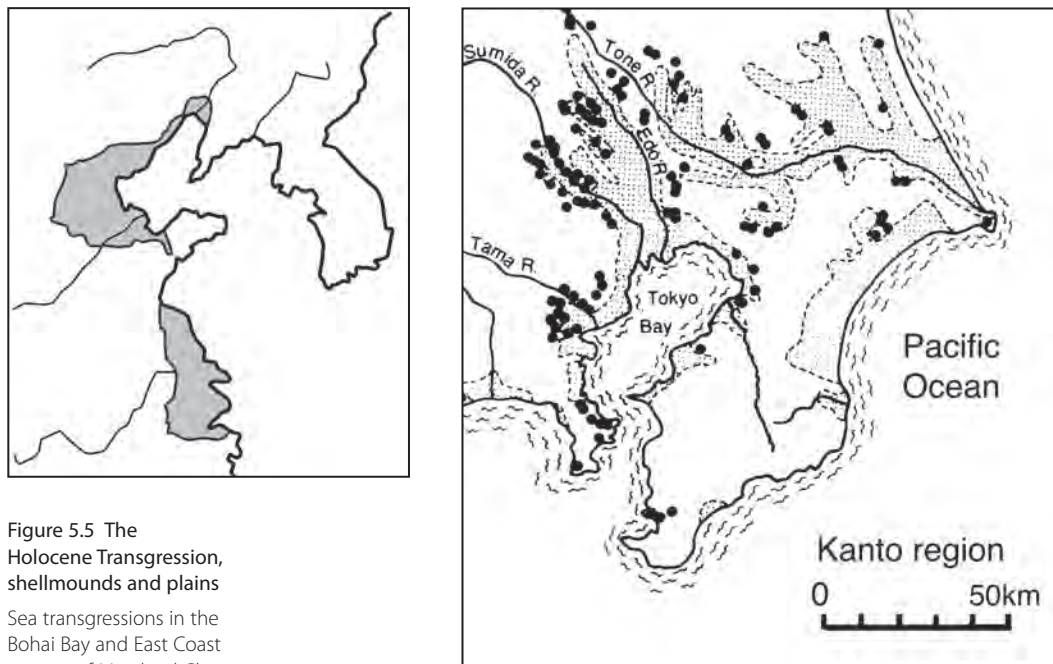


Figure 5.5 The Holocene Transgression, shellmounds and plains

Sea transgressions in the Bohai Bay and East Coast regions of Mainland China (left) and the Kanto region in Japan (right). Shellmounds at maximum sea level are marked by dots.

Regional variations in the timing and extent of relative sea level (RSL) rise are due to topography, tectonic instability, and coastal subsidence. Thus, it is difficult to generalize about sea levels around East Asia, but previous coastlines can be reconstructed from surviving shellmounds as well as raised beach ridges and corings. First named the 'Jomon Transgression' as identified by the position of Early Jomon shellmounds in inland Kanto regions, transgressions on Mainland China are now also mapped. During high sea levels, deltaic sands were deposited offshore and then exposed during receding of the ocean, forming the current coastal plains.

often yield freshwater shells.³⁸ More than 4000 shellmound sites are known in Japan, dating from 8000 BC into historic times, with some 1100 from the Jomon period alone.³⁹ Known shellmounds on the Korean Peninsula number about 600 from Chulmun (accounting for half) into late historic times. By contrast, barely 200 prehistoric shellmounds are known in China, the earliest dating to about 5000 BC.⁴⁰

Shellmounds record changes through time and space. For example, climate-influenced changes in species are attested by warm-water mollusks in Pen/Insular shellmounds, none of which are found naturally in these areas today. Human behavior also adjusted to sea level change as attested at Nittano:⁴¹ as the sea receded from this shoreline site, discarded shell species changed from marine to freshwater, but the fish species remained marine. Investigators interpret this shift in shellfish utilization not as dietary preference but due to the sexual division of labor: women collected shellfish close to home – regardless of the change in species with the receding sea – while men traveled the extra distances to continue to fish on the coast. Around the western and southern edges of the Korean Peninsula, non-residential shellmounds show signs of being used in Late Chulmun by several communities in a cooperative fashion.⁴²

Whether shellfish were eaten only in the spring as 'starvation food' or all year round is a common topic of debate. At Isarago shellmound

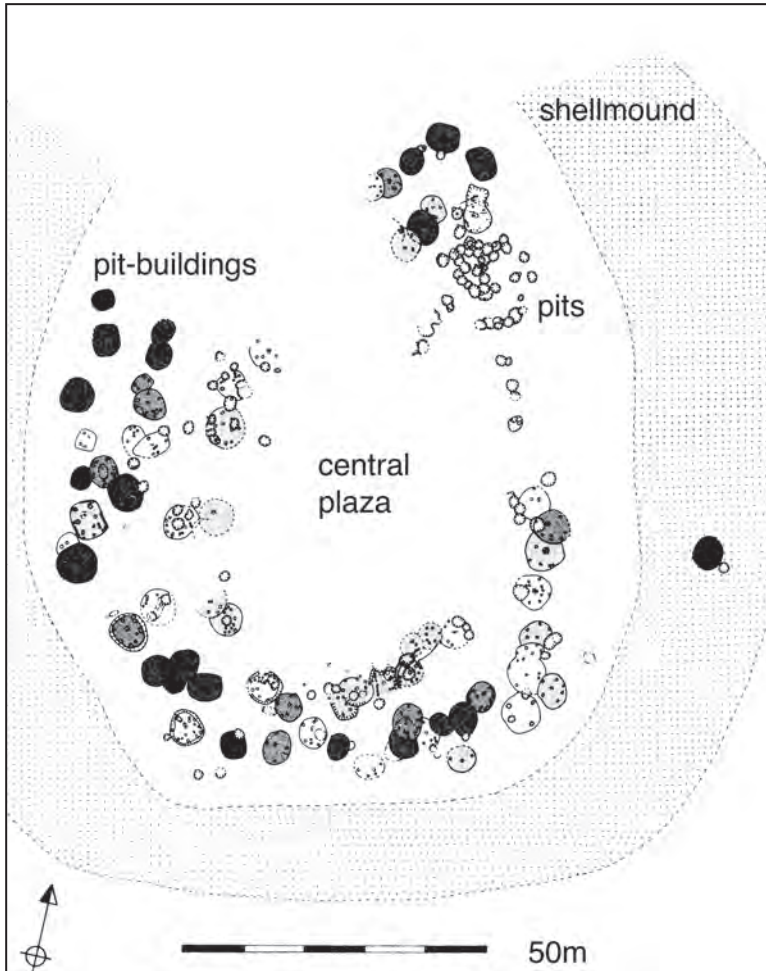


Figure 5.6 Shellmound village of Takane-kido

This Middle Jomon horseshoe-shaped shellmound surrounds houses and a central plaza. Pit-buildings are assigned to four different occupational phases, some seeming to occur in groups in the different phases.

(Figure 5.7), growth-line analysis of clamshells indicated in which season the clam died (hence, when they were collected for food). The numbers of clams (both *Andara granosa* and *Meretrix lusoria* together) versus oysters changed proportionally in each excavated layer – clams were collected in spring and summer but oysters from autumn to spring; shellfish contributed at least 25% of the necessary protein to the diet.⁴³ Although more than 40 species of shellfish were excavated from Peninsular shellmounds, 80% were oysters.⁴⁴ The species and collection patterns may differ for each shellmound site, with peak collecting times in different seasons, but some degree of gathering occurred throughout the year.⁴⁵

Shellmounds are important archives of faunal material because the acidic soils of the Pen/Insulae in general do not preserve bones. The calcium carbonate composition of the shells in shellmounds tends to

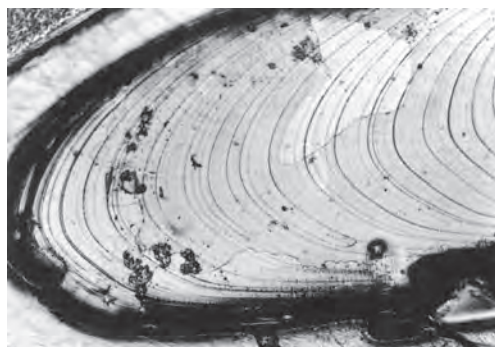
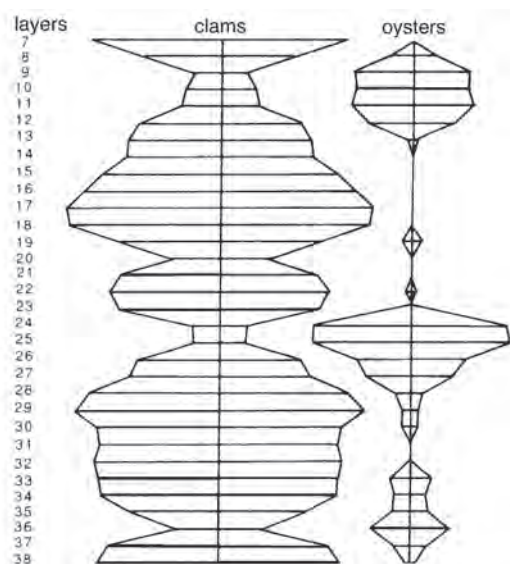


Figure 5.7 Isarago shellmound analyses

Complementary use of shellfish species (left) documented at the Isarago shellmound. Seasonality of collection was assessed by analysis of clamshell (*Meretrix lusoria*) growth-rings (right).

preserve other like substances deposited in them, such as bone, antler, tusks and teeth. Thus, shellmounds are gold mines for exploring coastal and sometimes inland Holocene subsistence systems. Eighty percent of the faunal remains in Jomon shellmounds are terrestrial resources: mainly boar and deer with smaller mammals and birds. Shellmounds around the Pen/Insulae yield about fifty fish species, with sea bream a favorite. Sea mammals included whale, dolphin, and sea lion, while numerous reptile and amphibian species have been identified.

Fish stories

Bone fish hooks occur in the earliest Jomon shellmounds and detachable toggle-head harpoons in later ones, demonstrating surprisingly early advances in fishing technology. The Initial Jomon shellmound of Natsushima, famous as the first radiocarbon-dated site in Japan in the 1950s,⁴⁶ yielded deep-sea fish such as tuna and bonito – crucial to Japanese cuisine even today for making sushi and miso soup stock. Sea mammals were also taken: oil adhering to ceramic vessel walls has been identified as dolphin through lipid analysis.⁴⁷

We already know that Palaeolithic peoples in the Kanto region were sourcing obsidian from offshore Kozu Island (see Figure 4.4),⁴⁸ and the Jomon were deep-sea fishers from early on. Thus, ocean-going vessels were a necessity: the hundred or more dugout canoes from waterlogged Jomon sites dwarf the single finds from Kuahuqiao and Pibong-ri on the continent. The Jomon examples are made of

broadleaf evergreen woods – Japanese cedar, nutmeg and camphor⁴⁹ – while the one from Kuahuqiao is soft pinewood.⁵⁰

The northeastern Jomon have long been hypothesized to have subsisted on Pacific salmon, but until archaeological deposits of shellmound sites and other features such as hearths and pit fills were wet-sieved, salmon remains were scarce. Pioneering work has now elucidated different processing and consumption patterns signaled by which parts of the fish are recovered: removing heads and fire-drying the bodies indicate planned transport and storage.⁵¹ The salmon at the Incipient Jomon site of Maedakochi, interpreted as a seasonal processing site used only during the salmon run,⁵² were speared with bifacially flaked points and accompanied by scores of endscrapers and sidescrapers, presumably used for both making the spears and processing the fish. The salmon heads and some remains of fish consumed on site were dumped into the single pit-building depression excavated there. This pattern would indicate *inland* fishing of anadromous species with distribution of processed salmon from there, perhaps *to* the coast. A similar processing pattern occurred at the Mumun-period Konam-ri shellmound site on the Korean Peninsula: there, whole skeletons of small fish but only the heads of large fish were recovered; the small fish were probably eaten on the spot but large fish bodies, minus the heads, were taken away for later consumption.⁵³

Pen/Insular species management

Jomon husbandry

The initiation of flotation for carbonized seeds and plant remains on archaeological sites revolutionized views of plant usage in prehistoric Pen/Insular cultures,⁵⁴ and these early findings have now been augmented by preserved plant remains from numerous wetland sites.⁵⁵ At least 58 plant species were used for food, revealing the Jomon as a good example of the integration of husbanding of plant resources into the seasonal hunting and gathering calendar (Table 5.2).

Nuts were not just harvested wild: stands of sweet chestnut, horse chestnut and walnut trees were actively tended to promote yields,⁵⁶ with increased nut size as one result.⁵⁷ In the Middle Jomon exemplified by Sannai Maruyama site (see Chapter 6), several kinds of nut trees are thought to have been managed by cutting forests surrounding settlements and encouraging seedlings to grow in unnatural densities; DNA studies of chestnuts have also revealed an unexpected uniformity in addition to larger and more homogeneous size – bolstering claims of human manipulation of chestnut tree propagation.⁵⁸ During warm periods, the Jomon preferred sweet

8000–5000 BC	5000–3400 BC		3400–2300 BC
Initial Jomon sites: Natsushima, Awazu, Nakano B	Early Jomon sites: Torihama, Matsugasaki, Yagi, Awazu, Sannai Maruyama, Junichogata, Oosawa		Middle Jomon sites: Sannai Maruyama, Usujiri B, Sakanobaba, Shimo-yakebe, Oosawa, Tominosawa
acorn barnyard grass beans <i>Vigna</i> sp. beefsteak herb <i>Perilla</i> bottle gourd burdock sweet chestnut goosefoot <i>Chenopodium</i> hemp water chestnut	azuki <i>Vigna</i> beans <i>Fabaceae</i> bottle gourd Brassicaceae buckwheat burdock sweet chestnut crabgrass (<i>Digitaria</i>) flax foxnut goosefoot hemp hemsley Hordeae horse chestnut (buckeye) lacquer tree	millet <i>Setaria</i> mountain yam <i>Dioscorea</i> nutmeg paper mulberry <i>Perilla</i> <i>Polygonum</i> prickly ash prickly water lily rape walnut	acorn azuki bean bottle gourd buckwheat sweet chestnut elderberry horse chestnut Japanese (barnyard) millet leek/onion millet <i>S. italica</i> mulberry <i>Perilla</i> <i>Rumex</i> soybean walnut water chestnut job's tears

5500–3500 BC		3500 BC ~
Early Chulmun sites: Pibong-ri, Sejuk-ri		Middle–Late Chulmun sites: Tongsamdong, Nambukdong, Sammokdo, Nunggok, Anganggol, Oun 1, Sangchon B, Pyonggodong
acorn arrowwood bedstraw bramble bulrush <i>Chenopodium</i> <i>album</i> Chinese jujube dandelion dock dogwood green foxtail ground cherry	hop <i>Hordeae</i> Japanese snowbell knotweed panic grass panicoid grass pine nuts plum spicebush wheatgrass wild grape wild kiwi wild onion	most of plants listed on the left plus: azuki bean beefsteak herb broomcorn millet foxtail millet soybean barley Manchurian walnut

Table 5.2 Husbanded and anthropogenic plants at Early to Mid-Holocene Jomon and Chulmun sites

chestnuts, which could be eaten without preparation, but in cold periods that affected chestnut yields, people were reduced to eating horse chestnuts.⁵⁹

Other plant species such as the native beefsteak herb, burdock, soybean and azuki bean became fully domesticated under Jomon husbandry, while even elderberry and job's tears showed signs of genetic change.⁶⁰ Seeds of barnyard grass (*Echinochloa crus-galli*) increased in size by 15% over a millennium, suggesting domestication processes; and by Middle Jomon its resultant Japanese domesticate,

barnyard millet *hie* (*E. utilis*, syn. *E. esculenta*), has been recovered from a cooking pot.⁶¹ The beefsteak herb (*egoma*, *shiso*) was apparently used as a condiment or seasoning: it has been identified by scanning electron microscope (SEM) in some of the Jomon cookies/hamburgers mentioned above.

Jomon husbandry extended far beyond food sources: tending of paper mulberry, cork and lacquer trees have led one scholar to call the Jomon “hunter-gatherer-resource producers”.⁶² Bottle gourds, an African species, must have been domesticated in the Pleistocene while being used for containers. The earliest finds date to the 9m BC^{vii} at Awazu, a waterlogged site at the bottom of Lake Biwa.⁶³ Lacquer trees in the wild are not good sap producers and need cultivation; the presence of lacquered items throughout the Japanese Islands from Incipient Jomon onward thus suggests that the Jomon managed stands of lacquer trees as well as nut trees.⁶⁴ Common lacquered products included ceramics, wooden objects, and composite combs, but the most spectacular find is a 9000-year-old burial in Hokkaido where the corpse was dressed with a twined textile hair ornament and armbands, bracelets and a leg blanket; the armbands and blanket were decorated with lacquered beads (Figure 5.8).

Animal species important to the Jomon were dogs, boar and deer. Dogs were a Pleistocene domesticate, the earliest yet found from the Mainland Nanzhuangtou site, dating 10.5–9m BC.⁶⁵ In the Jomon, both dogs and boarlets occur with human burials, indicating their close relationships with humans despite dogs being domesticated and boarlets wild. Unlike on the Mainland, wild boar were never domesticated in the archipelago despite their heavy exploitation in Jomon.⁶⁶ Still, a degree of management is suggested by size increases and the transportation by boat of some boar to islands to form introduced colonies.⁶⁷ Management of deer is not suspected, but we know from the Nara Deer Park in modern Japan (Figure 5.9) that the wild shika deer is quite comfortable living in proximity to humans; this relationship may have a very deep history. Thus, as with plants, Jomon land animals were a mixture of wild, partially managed, and domesticated species.

From Late Jomon, domesticated grains from the continent – rice, the millets and probably barley – joined barnyard millet in the Jomon diet. However, these additions account for less than 1% of identified plants until the introduction of wet-rice agriculture in the early 1m BC.⁶⁸ Thus, even when available, foreign domesticates did not replace traditional food sources, illustrating the powerful attachment of peoples to their own cuisines that we see even today.

^{vii} 9m BC = ninth millennium BC; this abbreviation for millennium will be used from now on.

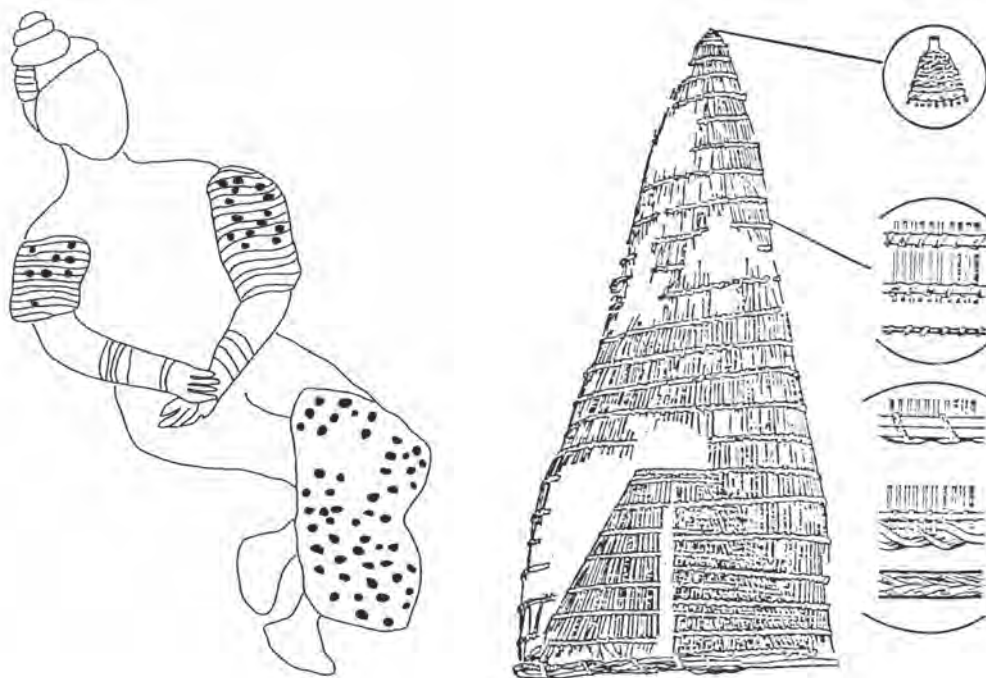


Figure 5.8 Jomon weaving and basketry

In an Initial Jomon burial in Hokkaido (left), twisted-fiber textiles decorated with lacquer beads covered the upper arms and legs of the deceased. Such textiles were made of hemp or deadnettle – probably woven on a matting loom. Basketry (right) recovered from wetland sites shows numerous knotting techniques, also apparent from cord-marked pottery.

Figure 5.9 Feeding shika deer at Todaiji Temple, Nara, Japan

A favorite tourist pastime. The deer also graze on the nearby Nara Women's University campus, and they use the walk lights to cross the street!



Chulmun husbandry

Chulmun plant usage is just beginning to be understood through flotation analyses.⁶⁹ Though based on a small sample, these preliminary results reveal a situation quite different from Jomon. In Table 5.2, more anthropogenic plants – those that colonized habitation and cultivation sites – are reported, but it is interesting that the Jomon standards of barnyard grass, *shiso*, burdock, bottle gourd and azuki are as yet undocumented in the Early Chulmun. Conversely, from Middle Chulmun onward (possibly earlier), millets from the Manchurian Basin are integrated into the husbanding regime; this perhaps accounts for the establishment of more permanent villages, like Amsadong, along inland rivers away from marine resources. Notched pebbles in the stone tool repertoire (Figure 5.10) may have been used as weft weights for weaving plant fibers into mats and textiles (as in Figure 5.8); alternatively, they could have been used as sinker weights for freshwater fishing in these inland regions.⁷⁰

In the transition from Chulmun to Mumun, the soybean achieved domesticated status, apparently in a separate domestication sequence from Middle Jomon.⁷¹ There is no evidence that wild resources were abandoned with the manipulation of cropping plants, including wet-rice technology introduced in the Mumun period.⁷² Among

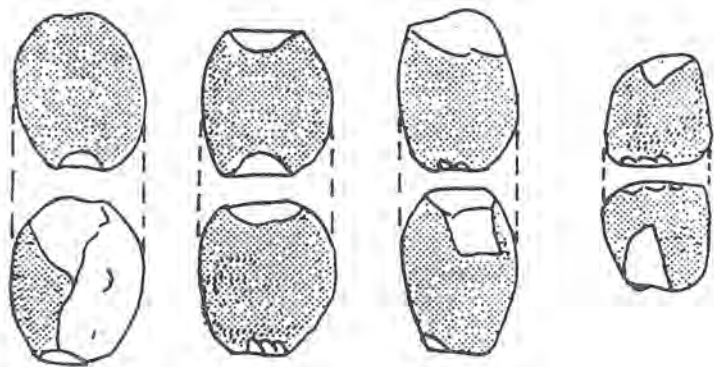


Figure 5.10 Weaving weights or net weights?

Simple crossbar matting looms used in recent Korean agricultural villages employed wooden weight spools (top), as demonstrated at the Korean Folk Village. Were the notched stones from Chulmun sites (bottom) used as loom weights, or as fishnet weights? Or both?

animals, the dog – appearing in Middle Chulmun – is the only clear domesticate. *Sus* is known from Chulmun sites, but the “onset of the domesticated pig in Korea is ambiguous”.⁷³

Mainland cereal growers

In-between societies on the China Mainland are generally divided between millet growers in the north/west and rice growers in the south. Root and tuber crops such as taro are now heralded as a possible third carbohydrate resource on the southern Mainland coast.⁷⁴ The prehistoric divide between millet and rice is reflected in the modern boundary between dry-land and wetland farming systems, following the Qinling Mountains (see Figure 1.1) and continuing along the Huai River to the east coast.^{viii} Through time, however, changes in climate and diffusion of technology have caused this agricultural boundary to oscillate. Jiahu site exemplifies this overlap: rice was grown there even though its material culture was affiliated with the Peiligang millet culture (see Table 1.2a). The role of the East Asian monsoon in the exploitation of grasses may have been quite significant (BOX 5.2), though the micro-correlation of individual sites with climate change is just beginning.⁷⁵

Domestication histories of the cereals differ greatly, making one story short (the millets) and the other exceedingly long (rice) (see Appendix G). Millet was a northern crop, while rice was farmed in the south. However, in the Middle Neolithic, both were grown in the central Mainland in the Huai and Wei river valleys.⁷⁶

Northern millet cultures

Domestic millets occur as two different species: common/broomcorn millet (*Panicum milacium*) and foxtail millet (*Setaria italica* subsp. *italica*). The ancestor of the former is unknown, but *Setaria italica* subsp. *Viridis* (green bristlegrass) is the wild ancestor of foxtail millet and still grows wild across Eurasia. *S. viridis* and barnyard grass have been recovered from the Younger Dryas site of Shizitan.⁷⁷ The 474 storage pits at Cishan were initially thought to contain foxtail millet, but new analyses identify 97% as common/broomcorn millet, and only 3% as foxtail millet.⁷⁸ The grindstones found at Peiligang sites may very well have been used to process this grain (Figure 5.11). Both domestic millets form the basis of the Yangshao culture sites from 5000 BC in the north, and the chipped stone reaper may have

^{viii} This characterization only applies to the eastern Mainland; millet was also grown in the southwestern highlands, being well adapted to altitude and aridity (d’Alpoim Guedes 2011).

evolved to harvest millets. In the past, Yangshao farming was thought to have been conducted by slash-and-burn, requiring large-scale forest clearance. Although many woodworking tools are found in northern Neolithic sites, no substantial charcoal from firing fields has yet appeared.^{ix}

There is a tendency to envision millet agriculture rippling out of this central region to be adopted in ever-distant areas, but work in the Manchurian Basin illustrates how this ideal is unfulfilled. The Northeast has the best environmental reconstructions on the Mainland, and micro-regional analyses of the transition to agriculture in relation to climate reveals three patterns: 1) continuous adoption and consolidation – if 2000 years later than the center; 2) initial adoption then either reversal or switch to an emphasis on pastoralism; or 3) resistance to agriculture while continuing hunting, fishing and gathering lifestyles.⁷⁹

Southern rice culture

All domestic Asian rice belongs to one species, *Oryza sativa*, though there are more than 2000 varieties known (e.g., red, white, short, long, glutinous, non-glutinous). The wild ancestor, *Oryza rufipogon*, still exists and can cross-breed with domestic rice. In the Yangzi River drainage, the collection and/or incipient cultivation of wild rice began between 9000 and 8000 BC by non-sedentary groups. After 7000 BC, sedentary communities developed ‘in-between’ subsistence strategies.⁸⁰ Transformation of wild into domestic rice can be monitored by morphological change at archaeological sites, and a gradual evolution concluded with the fixation of domestic traits in rice around 4000 BC.⁸¹ This is very late compared to some of the claims in the literature.

New data from Jiahu, a Peiligang culture site, suggest faster domestication there than in the Yangzi Basin. Because the site was located on the border of natural rice distribution, attempts to grow the crop beyond its normal range where it could not cross-breed with its wild cousins may account for the more rapid appearance of domesticates.⁸² Rice has been found in Houli culture sites of Shandong, far beyond the wild rice border, though the climate was much warmer during Houli times than today; connections with the Peiligang culture might be reflected in usage of the same kind of footed quern (see Figure 5.11).⁸³

Probably the most contentious area of research at the moment regards the methods in distinguishing wild from domestic rice and determining their proportions in the diet. These are complicated

^{ix} As originally discussed in CKJ; see Jia, P. 2007: 23, 25 for a rebuttal.

BOX 5.2 Middle Holocene climate

The Holocene Climatic Optimum is classically defined by high air temperatures that occurred between ca. 6500 and 3000 BC. Despite reflecting only temperature, this time span is often characterized as the 'warmest, wettest' climate and the highest post-glacial sea levels. However, sea levels varied locally, and certain regions were actually very dry at times – high temperatures do not necessarily indicate high rainfall (think deserts). The more important factor affecting human activity was actually precipitation – the key factor for floral growth – not temperature per se.

Precipitation can be measured as 'effective moisture' (EM) or as 'effective soil moisture' (ESM). EM is defined as "a function of precipitation, evaporation and temperature" and calculated as P-E (precipitation minus evaporation), or the amount of moisture that remains after evaporation. ESM takes into account other sources of moisture: permafrost and snow/ice melt together with precipitation.

ESM is, of course, affected by the summer monsoon, which consists of a body of warm moist oceanic air moving inland and encountering cooler continental air; rain clouds form along a quasi-stationary 'front', bringing heavy precipitation in late spring to early summer (the East Asian rainy season: *C. meiyu*, *J. baiu*, *K. changma*). Its corollary is a dry winter. Several dimensions of the monsoon are important for assessing past environments across East Asia: strength, inter-annual variability, and position of the front. Monsoonal strength is measured by 25 different indices which have been combined into two for ease of representation; essentially strength is the amount of rain that falls within the frontal area in one year. Currently the monsoonal front lies between 27°N and 35°N (the Yangzi River valley through southwestern Japan); within this area there is the "seasonal march" as the front moves northward. The seasonal march is affected by solar forcing, while inter-annual rainfall variability is due to regional climate factors, including El Niño and tropical typhoons. Rainfall north of the monsoonal front reflects different climate factors, such as "teleconnections" with the Indian Monsoon that affects the western Mainland. The northern South China Sea and Philippine Sea are relatively dry during monsoon season.

The summer monsoon delivering that precipitation is described as a "time-transgressive phenomenon (i.e., not a chronostratigraphic unit)", and the proposed positionings of the monsoonal front across the China Mainland through the Holocene have already been used for archaeological interpretations. More recent work exposes this as a flawed model; nevertheless, the original researchers have produced preliminary data illustrating regional variations in precipitation throughout the Holocene (right). These data underscore how difficult it is to speak of the Climatic Optimum in blanket terms as "warm and wet".

One global event was an "abrupt cold snap" around 8000 years ago (the 8.2kya event). In East Asia, this manifested itself in the weakening of the summer monsoon, leading to a 150-year dry period enveloping a central 70-year phase of "pronounced aridity". How this affected the Early Holocene cultures at 6250 BC is yet to be determined, but note that 6200 BC forms the dividing line between Early and Middle Holocene, and that in Table 1.1, several Mainland Neolithic cultures began about 6000 BC.

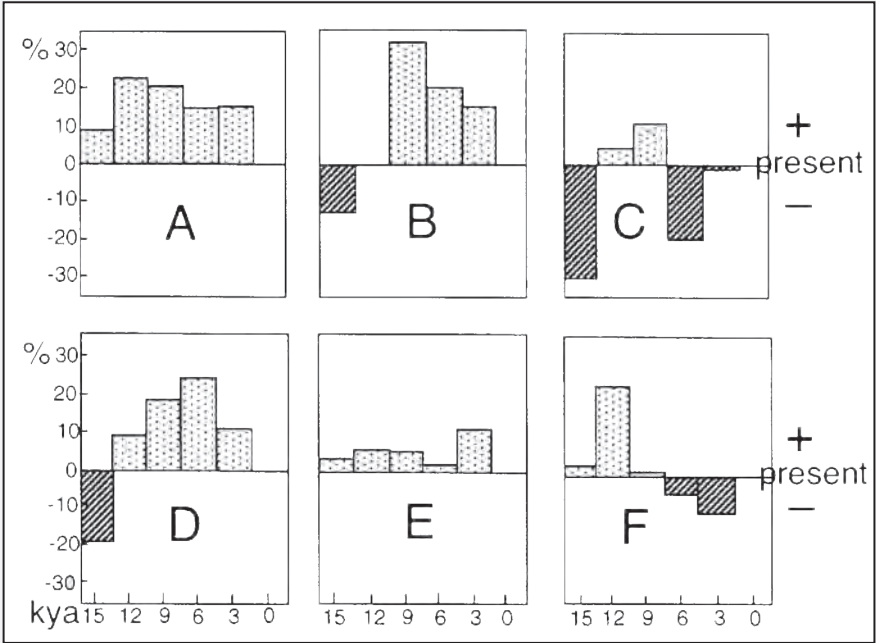
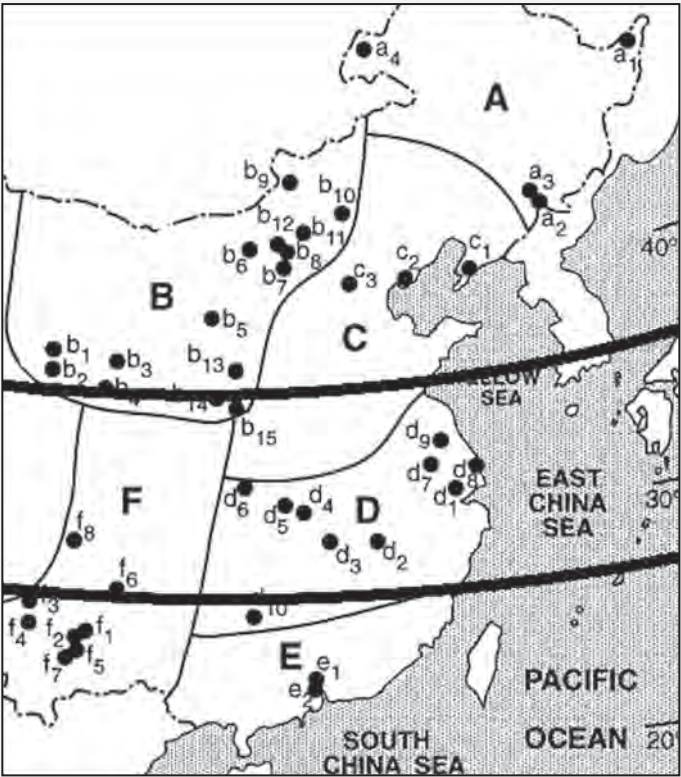


Figure 5.11 Neolithic farming tools

Quern set (lower) and serrated stone sickle (lower right) from a Peiligang culture site, scapula-shovel from Hemudu (upper left), and chipped reaper from Banpo (middle left), notched on both sides to take a cord to hold it with. The diagram shows how a polished stone reaper is held by a cord through drilled holes to crop only the grain heads – a harvesting method that led to genetic changes in the crop.



issues, as intermediate or transitional forms have been identified (see Appendix G). Many publications assume domestic rice was present without actually demonstrating the fact, though more nuanced investigations are currently taking place by archaeobotanists, for example in The Early Rice Project.⁸⁴

Mainland broad-ranging subsistence

The mere presence of a domesticate does not make the Mainland Neolithic agricultural.⁸⁵ We have already rejected this judgment for the Pen/Insulae, and it applies equally well to the Mainland. It is fairly well agreed now that Early Neolithic mainlanders maintained broad-ranging subsistence practices until intensification of cereal crops in the Late Neolithic.⁸⁶ The lists of foods obtained from northern and

southern Mainland sites^x rival those from the Pen/Insulae in their diversity and richness, but aquatic plants are more common in the south: water chestnuts, water caltrop, lotus root and foxnuts of the water lily family. Land plants included acorns and horse chestnuts, peaches and apricots, bottle gourd, and job's tears and lacquer trees, while wild animals include deer, serow, boar, alligators, waterfowl, dolphin, turtles, fish and shellfish. Reports of pig, water buffalo, goat, chicken, and cattle from Early Neolithic sites must be treated with caution until the problems in determining domesticated status are resolved (see Appendix G); at best, these animals should be considered somewhere within the wild–domesticated continuum, with only dog and perhaps pig comprising unassailable domesticates until quite late.

In the Middle Neolithic, from 5000 BC, crops form a much larger proportion of the diet, yet hunting and processing of wild foods is still a significant part of the subsistence regime. One interesting case in the 3m BC shows the replacement of pine forests with sweet chestnut trees.⁸⁷ However, forests housing wild plants and animals were cut back as agriculture expanded: pollen studies indicate forest losses of up to 26% during the fourth through 2m BC in areas where dry-field cultivation was initiated.⁸⁸ The loss of these resources forced people to intensify their efforts in food production.

Food studies

Proportional food resources

Reconstruction of prehistoric diets is a major task of archaeology, giving insight to resources available, how they were used, and what pathologies might have developed from their use in the local population.⁸⁹ The listing of species found at archaeological sites gives us a good idea of the wide variety of plants and animals utilized in any one particular place, but their presence in the archaeological record is highly dependent on conditions for preservation. Moreover, a mere listing such as in Table 5.2 does not reveal each foodstuff's relative contributions to the diet. Two techniques of assessing dietary intake are proportionality studies and isotope studies, both in their infancy in East Asia.

Research at Tianluoshan has shown that at 4900 BC, acorns still comprised more than half the plant remains recovered,^{xi} even after rice was integrated into the diet.⁹⁰ By mid-millennium, gathered plants – including acorns, other nuts and fruits – still accounted

^x North: Dadiwan 1, Cishan, Peiligang, and Xinglongwa culture sites; south: Lower Zaoshi and Kuahuqiao culture sites.

^{xi} However, it is not yet clear how these were used (Crawford pers. comm. April 2014).

for 68% of the water-logged and charred plant remains collected at the site. During the early 5m BC, rice and paddy field weedy species increased substantially, and spikelet morphology indicates an increase in domesticated forms and a decrease in wild forms, though with some controversy over the datings. As at Hemudu, rice at Tianluoshan was accompanied by a diverse range of mammals (particularly deer), birds, reptiles, and a substantial amount of fish. By 3800 BC at Caoxieshan, acorns and water chestnuts were absent, and domestic forms of rice accounted for 70% (but only 70%!) of the crop.⁹¹ Thus, Tianluoshan reveals domestication in progress within a broad-range subsistence regime, and Caoxieshan suggests a narrowing of food choices with increasing reliance on a domesticated staple.

Greater management and intensification of rice-growing was perhaps the key to the rise in domestic forms. This may have been accomplished through field construction. Paddy fields at Chodun and Caoxieshan (Figure 5.12), measuring 1–15m², were cut into sterile subsoil, as were canals and deep pits interpreted as reservoirs;⁹² the need to pool water fits with the 5m BC dry period in this area.⁹³ Once paddy fields were in existence, they served as the means for crop intensification – leading to reliance on domestic rice as a major staple.

These results from individual sites cannot yet be broadbrushed across the Mainland. Moreover, each site sat in its own ecological and cultural nexus, which determined what resources were available and how each was used. Despite the general understanding that Late Neolithic cultures were fully agricultural, wild foods were still



Figure 5.12 Paddy fields at Caoxieshan, dating to 4300–4000 BC

The paddy soils (darker areas) of the small irregular fields yielded phytoliths (plant opal) from rice grains and chaff, plus paddy-field weed assemblages and aquatic foxnut. Perhaps this early phase of paddy field agriculture should be called 'puddle' field agriculture....

important. Data from the Longshan period site of Liangchengzhen in the Shandong cross-over area for millet and rice suggests that pigs were fed millet while people ate rice.⁹⁴ Fish remains in pots at the site indicate a continued reliance on wild food. Indeed, the East Asian combination of rice (domesticated) and fish (wild) provides perfect complementary proteins (yay sushi!).

Isotope analyses

Isotopic work (BOX 5.3) is illuminating both the use of millet, and dog and pig domestication in northern Mainland sites.⁹⁵ At Dadiwan,⁹⁶ an early phase occupation contained bones of two dogs and four *Sus* who foraged on wild foods, but three dogs were

BOX 5.3 Dietary isotope studies and plant food classification

Most elements including nitrogen (N), carbon (C) and strontium (Sr) have several different isotopic forms: the number of neutrons in their nuclei does not equal the number of protons. Since it is the number of protons that determines the element's identity, this variation in neutron number is not critical, but it can be very useful. Neutron number is annotated to the upper left of the element abbreviation.

Ratios of stable nitrogen ($^{15}\text{N}/^{14}\text{N}$) and carbon ($^{12}\text{C}/^{13}\text{C}$) isotopes in bone and teeth reflect the ingestion of proteins from animals and plants and are presented as delta values ($\delta^{15}\text{N}$, $\delta^{13}\text{C}$ respectively). Among plants, carbon isotope ratios can distinguish between different kinds of grass protein eaten: from plants like rice, growing in humid environments and following C_3 photosynthetic pathways, or from plants like millet, growing in arid environments and following C_4 photosynthetic pathways. Nitrogen isotope ratios can further distinguish between land and sea sources of protein.

C_3 plants (95% of all flora)	trees (nuts), wheat, rice, soybean, barley
C_4 plants (the majority of grasses) adapted to intense light, high temperatures, and aridity	millet, sorghum, sugar cane, maize

C and N ratios can be obtained from bone collagen and bone apatite and reflect the diet averaged several years before death. However, isotope ratios especially of strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) taken from tooth crowns reveal dietary habits of youth. Strontium is highly localized in distribution and is absorbed from plants, animals and water when living in a certain area. The tooth enamel isotope ratios can be compared with the bone isotopic ratios as well as strontium levels in different geological eco-zones, revealing whether a person has moved from one area to another during their lifetime – often pinpointing the general region whence they came (see BOX 11.4). It is no exaggeration to say that isotope studies are revolutionizing views on early subsistence and migration.

eating millet – implying they were camp-fed. In the second phase occupation, only camp-fed dogs and *Sus* were in evidence, indicating closer relations between humans and their animals and greater resources to provision them with. At Jiahu, isotope analysis of the human remains confirmed the majority were eaters of C_3 plants including rice; however, one person had a high reading for both animal protein and C_4 plants like millet. It was questioned whether “this individual was an immigrant from the Yellow River Valley, where C_4 plants and C_4 -fed pigs were dietary staples”⁹⁷ – an extraordinary level of detail to be accessed in archaeology! Another mid-6m BC site has produced the earliest evidence for cat domestication by showing, through isotope analysis, that both cats and rats were eating millet; since the cats were deemed beneficial to the settlement by eating the rats that ate the stored millets, they must have developed commensally with the human community.⁹⁸

Work in Japan takes another direction altogether: isotopic differences were detected between Early Jomon males and females in Hokkaido, attributed to men eating terrestrial game while women ate fish and gathered food.⁹⁹ A different study in the Inland Sea area concluded that Middle Jomon men ate marine resources while women ate terrestrial sources of protein.¹⁰⁰ And in eastern Honshu, males eating different diets of marine or terrestrial resources may be the earliest evidence for occupational differentiation,¹⁰¹ supposedly between hunters and fishers.

Stable isotope analyses are particularly useful in determining differential regional and temporal patterns, as illustrated by Peninsular shellmound analyses. Marine resources formed the main source of protein at Incipient (Ando), Early (Taepo) and Middle (Tongsamdong) Chulmun shellmounds, but at Late (Taejuk-ri, Konam-ri) Chulmun shellmounds, terrestrial sources of protein dominated. Two different hypotheses address the difference, dependent on time and place. Whereas the earlier shellmounds are all located on the southern Peninsular coast, the Late Chulmun shellmounds are located off the western Peninsula. Perhaps marine resources at the western location could not support people year-round, or perhaps the incorporation of millet into Late Chulmun diets refocused attention on terrestrial resources.¹⁰² The results for Konam-ri, one of the western shellmounds, are particularly interesting because an earlier faunal analysis of bones from the site determined that the major dietary resource was fish.¹⁰³ The isotope ratios seem to overturn this finding.

Refinements in analytical techniques such as these are constantly revising our understanding of prehistoric subsistence. They also

highlight the difficulty in making generalized statements about what individual people and communities ate at different times and places in the past. Wild foods still hold an important place in modern diets. We still go hunting and fishing and pick blackberries in the autumn, treasuring these foods collected from the wild. Korean cuisine contains something like fifty wild foodstuffs, while banquet foods in Japan (*kaiseki ryori*) and China also celebrate wild products. It is all a matter of proportionality, and our task is to assess those proportions in relation to the activities of the societies they support.

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Chapter 6

The Mid-Holocene Social Mosaic (5000–2000 BC)

Introduction

Villages across East Asia in the early Middle Holocene exhibited a mosaic of different subsistence, social and economic constitutions. These settlements fall into regional groupings that are primarily defined by their ceramics – groupings that we will use here to examine relations between and among them. As yet there is no intimation that early societies were organized politically beyond kinship – though in some, shamans might have played special roles. By the end of this period, however, chief-like figures are thought to have emerged – but only in Mainland societies and not in the Pen/Insulae.

Around the world, agricultural intensification has often been accompanied by social hierarchization. This process was based on the ability of some families to extract surplus food that was used to support manufacture or importation of prestige goods of rare and valuable materials or specialist production. The warmer climate dominating this period enabled the flourishing of agriculture in most Mainland areas. As millet and rice came to dominate Neolithic cuisines in the northern and southern Mainland respectively, wealth and status differences appeared both in residences and in burials.

Chulmun, however, stands as a cautionary tale. Cultivation of millet on the Korean Peninsula did not automatically lead to agricultural intensification or to the development of a rich material culture. The Jomon illustrate a different principle: the development of a sophisticated artifact repertoire depended neither on agriculture nor on social hierarchies. Many Jomon societies had elaborate material cultures and ritual goods based on hunting-gathering-horticultural activities, though no Jomon chiefly societies ever developed.¹ Despite this inverse relationship between subsistence and material culture compared to the Mainland, the Middle Jomon offers us the first example of an integrated exchange network of a type as yet to be defined on the Mainland.

While textured pottery continued to be produced throughout East Asia, Neolithic pottery types on the Mainland had two more supra-regional manifestations. The standard regional divisions that define

Mainland Neolithic cultures (see Table 1.1) can generally be grouped into the painted traditions of the Loesslands in the northwest and the East Coast traditions of unpainted, footed vessels. Painted pottery in the Loesslands was primarily interred in burials and occurred in far smaller quantities than its reputation would suggest. In contrast, East Coast ceramics consist of highly elaborated serving vessels used in feasting and status enhancement.

The Yangshao and Dawenkou cultures respectively embody these two Mainland ceramic traditions. Because a modicum of Miaodigou-type painted pots of the Late Yangshao occur in Dawenkou sites, exchange networks are presumed among elites of the Loesslands and East Coast.² Yangshao sites particularly inform on village life, while Dawenkou burials provide evidence of the growing wealth and status of high-ranking villagers.³ These strengths will be exploited below in exploring mid-Holocene societies, with Hongshan as an interesting comparator. But first, the Middle Jomon in the Japanese Islands....

The Middle Jomon phenomenon

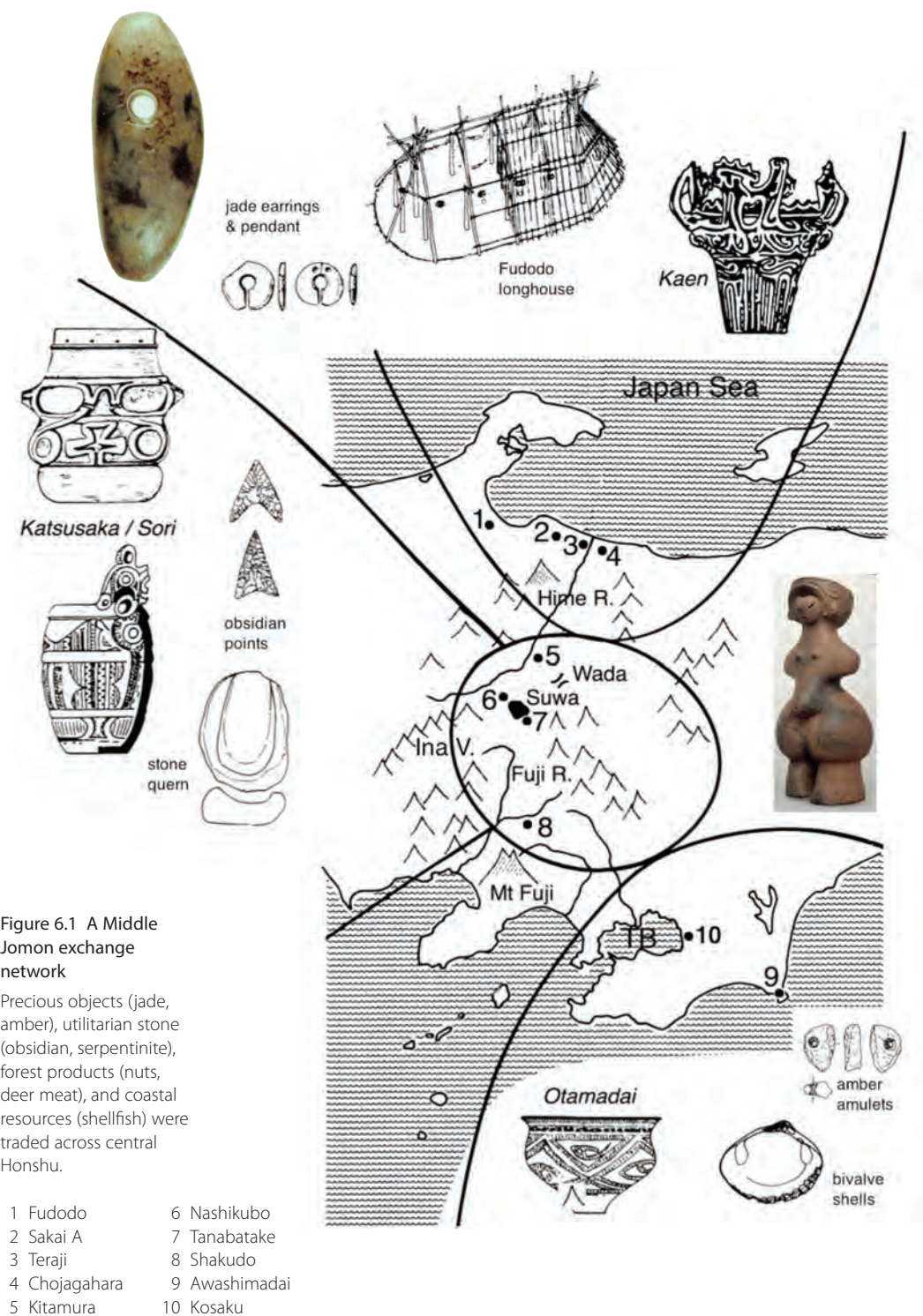
Middle Jomon had the highest population and site densities in the Jomon sequence (see Table 1.5) and is noted for its large sites hosting considerable ritual activity. Trade of multiple items across central Honshu is the earliest example we have of an exchange system in East Asia. Nowhere on the China Mainland has a similar regional economic system been reconstructed as yet, but there, unparalleled analyses reveal household and intra-site economics, as we'll see below.

A regional exchange network

Because the Japanese archipelago is long and narrow, with vast altitudinal differences between shore and mountaintop, several ecozones are in proximity. Utilizing variances in biological productivity and unique geological resources, people living in these areas exchanged their local goods across the island (Figure 6.1). Since this exchange network was first hypothesized, many different studies have added details that support this networking across the landscape.

Three groups were involved, each known by their pottery types (see Table 1.6).ⁱ The peoples on the Japan Sea coast produced fluted pots with intricate flame-shaped rims (*kaen*). Their production attests both to immense creativity and lots of free time! The large pit-building (7 × 18m) known at Fudodo,⁴ with four interior hearths,

ⁱ Pottery types have been redefined since CKJ: Umataka is now included in Kaen; Atamadai is alternatively spelled Otamadai.



has been interpreted by some as a winter community center. Perhaps this is where these people, living in 'snow country', spent long hours individually competing to make interesting pots. Fudodo also gives us a good example of Jomon social organization: the single central building was divided by a screen into two halves, each containing two stone-lined hearths. In one half, the hearths were square, in the other half, round; these corresponded with hearths in the village houses, which had either square or round hearths but were not clustered into groups. This division is taken to represent a 'duality' in social organization which at other sites is expressed in having two large buildings forming centers of separate house clusters.⁵ Such large buildings are often interpreted as communal work or meeting spaces for each group in the village.

Nearby, the area around the mouth of the Hime River is known as the 'Jade Coast', where nodules collectively known as Itoigawa jade could be gathered on the Japan Sea shore and along the rivers inland. This is the only source of jadeite in East Asia – true jades on the Korean Peninsula and Mainland China are all nephrite. The geological setting of Itoigawa jade also provided much serpentinite and steatite (soapstone). Several beadstone-working villages were known at Sakai A, Teraji and Chojagahara. Jadeite was made into beads and axes/adzes, serpentinite into polished axes/adzes, and steatite into split earrings. Jade items were distributed mainly across central Honshu but also through Tohoku as far as the Sannai Maruyama site at Honshu's northern tip. Large jade pendants, usually found in settlement contexts, were sometimes included in burials, but never jade axes; thus the material itself did not seem to be independently valued, and there is no indication that burials with pendants were otherwise exceptional.⁶ Small amounts of non-local pottery occur at the beadstone-working sites, indicating communications with other areas.

The Katsusaka and Sori pottery of the peoples living in the Japan Alps and western Kanto often bore motifs suggesting regeneration, such as frogs and snakes, indicating a concern with natural reproduction. This theme is also expressed in figurines, such as the 'Venus' from the Tanabatake site whose pronounced belly suggests pregnancy (Figure 6.1, right). It was excavated from a small pit 70 × 79cm in the central plaza, interpreted as a secondary burial though no human remains were found. In great contrast, most figurines are discovered in pieces scattered throughout a site. At Shakudo, only 22 of 1116 figurine fragments found could be pieced together, suggesting that intentional dismemberment and distribution within or between villages was a formalized ritual.

Four of the five different kinds of Jomon cookies/hamburgers (see Chapter 5) were recovered from this region, and isotope analyses of human bone collagen from the Kitamura site indicate that about 80% of the local diet was C₃ plants, including nuts, with very few land animals being eaten despite the mountain location.⁷ Sites in the Ina Valley are characterized by an abundance of querns for processing nuts, and they also have the highest proportions of jadeite pendants and a lot of serpentinite axes,⁸ so it is likely that stone objects and nuts were being traded against each other.

The Otamadai pottery from the coast that is found at some inland sites may have served as containers for shipping shellfish up the mountains. Shellmounds are particularly numerous around Tokyo Bay (TB in Figure 6.1); some large sites contain far more shells than could possibly be used by residents, leading to their interpretation as shellfish processing sites. Isotope analyses from Kitamura and Kosaku support this idea of trade in shellfish, as the inland and coastal sites show similar amounts of marine food ingested;⁹ in exchange, nuts were the most likely product delivered from the highlands to the coast.

Another product that moved from the Kanto region inland was amber, sourced at Awashimadai on the 'Amber Coast', where bead-working debris has been found. This site is interpreted as a seasonal hunting site, with extensive shika deer remains, and amber might have served as hunting amulets.¹⁰ Central mountain pottery has been found at the site, and amber objects from the coast are particularly abundant around Suwa Lake and the Fuji River drainage in the mountains (as seen in Figure 6.1). The Nashikubo site had particularly well preserved amber, plus much obsidian in the form of raw material, debitage and finished arrowheads.¹¹

The quarrying of obsidian continued at the central Honshu sites used during the Palaeolithic (see Figure 4.4): Wada Pass and Kirigamine in the high mountains, and Hakone and Kozu Island near the coast. Like Nashikubo, Tanabatake was a production site for obsidian objects; it also yielded pottery from the Japan Sea coast and eastern Kanto, jadeite pendants, jadeite and serpentinite axes/adzes, and amber.¹² The ratio of obsidian arrowheads drops from 90% of all arrowheads in the mountains, to 70% in west Kanto and 46% in east Kanto,¹³ suggesting down-the-line trading where materials decrease in abundance farther from the source.

Seemingly comparing apples to oranges, mutually exclusive distributions have been noted of chipped stone hoes in the central mountains and west Kanto versus storage pits in east Kanto villages.¹⁴ The hoes are thought to have been used to dig the indigenous mountain yam (*yamaimo*) (see Table 5.2), but they could have also served in

weeding and in tending nut tree stands. Perhaps the pits in the distant east (see Figure 5.3) were explicitly for storing imported mountain products (nuts? mountain yam?). Continuing research on subsistence variations in these different areas and possible trading of foodstuffs will enhance our understanding of the relationship of these different peoples during Middle Jomon times. The outstanding question is this: why did such a network develop in the Japanese Islands but not on the Mainland? A facile answer is that ecological zones in the Islands were closely juxtaposed (compared to the vast continental expanses) and therefore more easily coordinated – but long distances did not stop the prehistoric Hopewell people from developing the first documented Interaction Sphere across North America.¹⁵

Core villages

Several of the large villages with long occupational histories seemed to form nodes within the exchange network across central Honshu. While some interpret them as “trading centers”,¹⁶ there is currently no evidence that they functioned to distribute goods to smaller villages in the region. They do, however, contain many objects that might have made them a focus for local ritual activities. Ceramic figurines and phallic stone rods or menhirs are most common. Figurines began with incised pebbles (see BOX 4.1); some are polished stone but most are solid or hollow fired clay, measuring 3–42cm in height.ⁱⁱ The most exotic examples occurred in the Late Jomon.

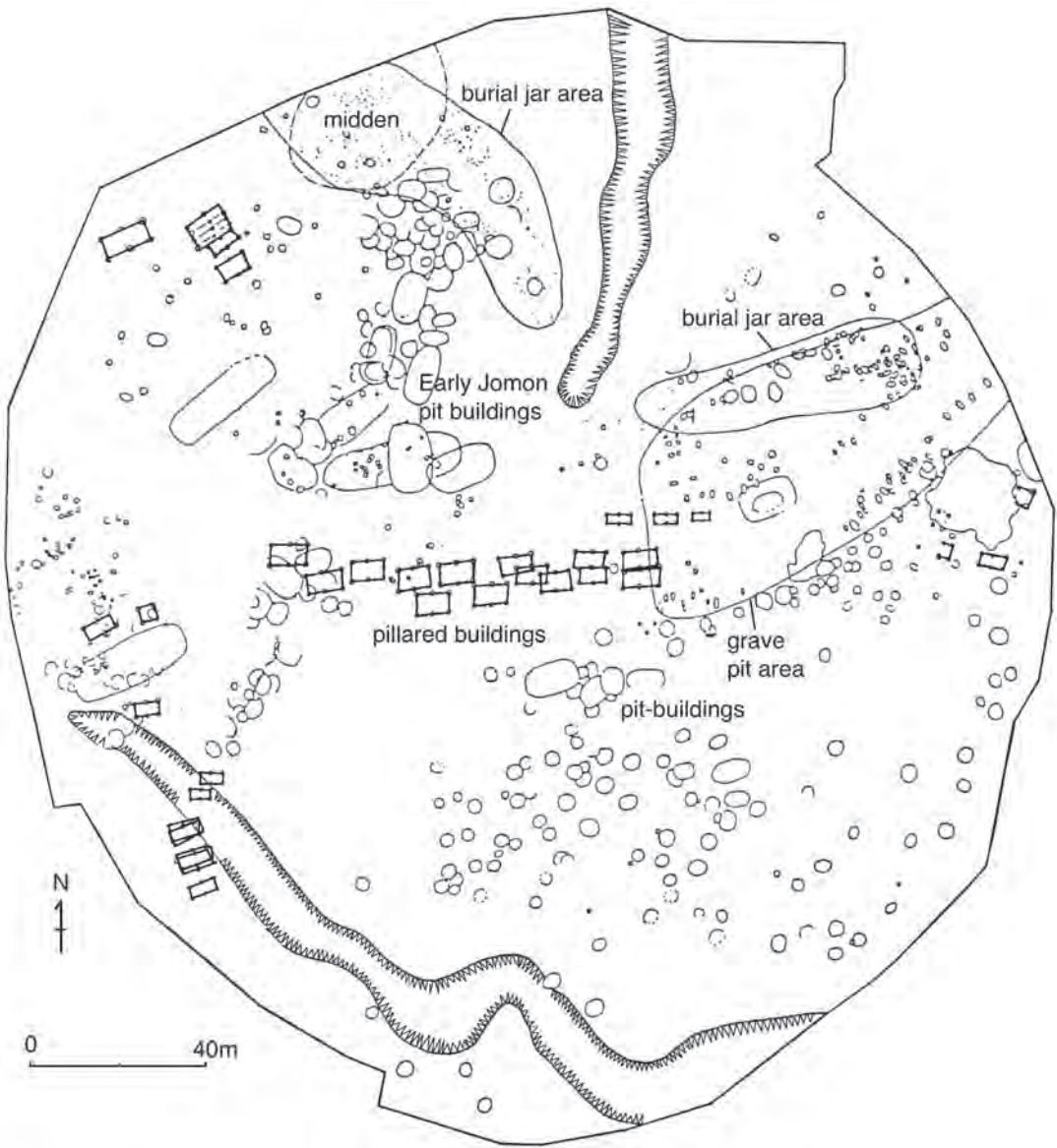
Sannai Maruyama, the largest known Jomon site, functioned as a core village (Figure 6.2). It was occupied over 1600 years (3900–2300 BC) from Early through Middle Jomon, comprising a village of 40–50 houses and some 200 people normally but growing at one point to 100 houses and 500 people.¹⁷ Analysis of individual occupational phases, however, reveals tremendous shifts in subsistence and site usage.¹⁸ The period of densest occupation coincided with abundant figurines (1600 excavated) and extremely small pit-buildings interpreted as seasonal residences.¹⁹ Long-distance trade brought in jadeite from the Jade Coast, amber from the only other known source at Kuji (located on Figure 6.2), obsidian from Hokkaido, and natural asphalt from the western Tohoku coast of Honshu.²⁰ A variety of nuts (sweet and horse chestnuts, walnuts, and deciduous acorns)²¹ supported occupation of the site, along with barnyard grass, beans, and lots of fish, particularly sharks. However, at the peak of its population density, the site’s tool kit shifted from many querns to a predominance of arrowheads, and the site declined

ⁱⁱ As shown in a recent British Museum exhibit. See Kaner 2009.



Figure 6.2 Sannai Maruyama site in northern Tohoku

The site was surveyed and excavated for a baseball stadium (hence its round outline), but upon discovery of an almost complete Jomon village, it was designated a Special National Historical Site in 2000. It was occupied first in Early Jomon (pit-buildings and midden), but most of the features belong to Middle Jomon, including pillared storehouses. Two gullies were filled with artifacts. One of the longhouses and the timber ritual structure (photo, right) have been reconstructed for public viewing.





thereafter – attributed to subsistence overspecialization combined with climatic deterioration.²²

Sannai Maruyama is particularly known for its raised storehouses, two longhouses dating to its decline, and two interesting installations.²³ A set of six huge chestnut pillars are thought to have formed a watchtower or ritual – perhaps astronomical – facility; more than a meter in diameter, the pillars were embedded in pits more than 2–3m deep, requiring substantial labor to erect. Another feature was an earthen mound 3m high containing not only discarded pottery and tools but also jadeite and amber ornaments and broken figurines. On the hypothesis that Sannai Maruyama was not a core ‘trading center’ occupied continuously, but discontinuously and seasonally, a different kind of function for it has been proposed: seasonal congregations of people partaking in mutual exchanges and rituals.²⁴

The Early to Late Jomon periods are also marked by the construction of stone circles, which are also conceived to be ritual gathering sites. Initially located near settlements, in Late Jomon they were liberated as independent sites, often concentric arrangements of standing stones or paving stones. Excavations demonstrate that the stones in the outer circles often cover burials underneath, the site serving as a cemetery. The Oyu site is most famous among the 30 or so known examples; it is situated in central Tohoku, not far from Sannai Maruyama (see Figure 6.2). The site consists of two separate circles plus sundial-like monoliths (Figure 6.3).²⁵ Alignment along each of the stone circle centers and their sundials points to the summer solstice.²⁶ Some of the stone clusters in the outer rings cover pits underneath; phosphorus tests of the pit fill indicate some might be burials, but none of the pits contain artifacts.²⁷

This completes our look at a Textured Pottery tradition. The next two sections will investigate the two Mainland pottery traditions (BOX 6.1) in mid-Holocene sites across the Mainland (Figure 6.4).

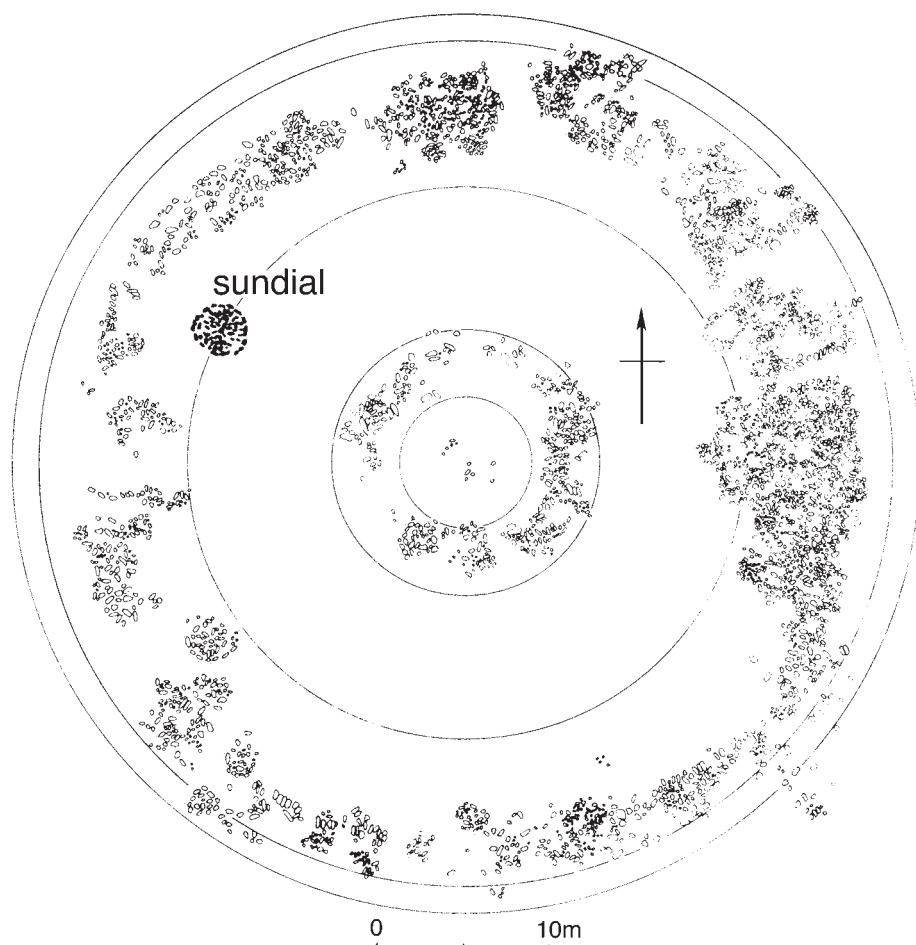


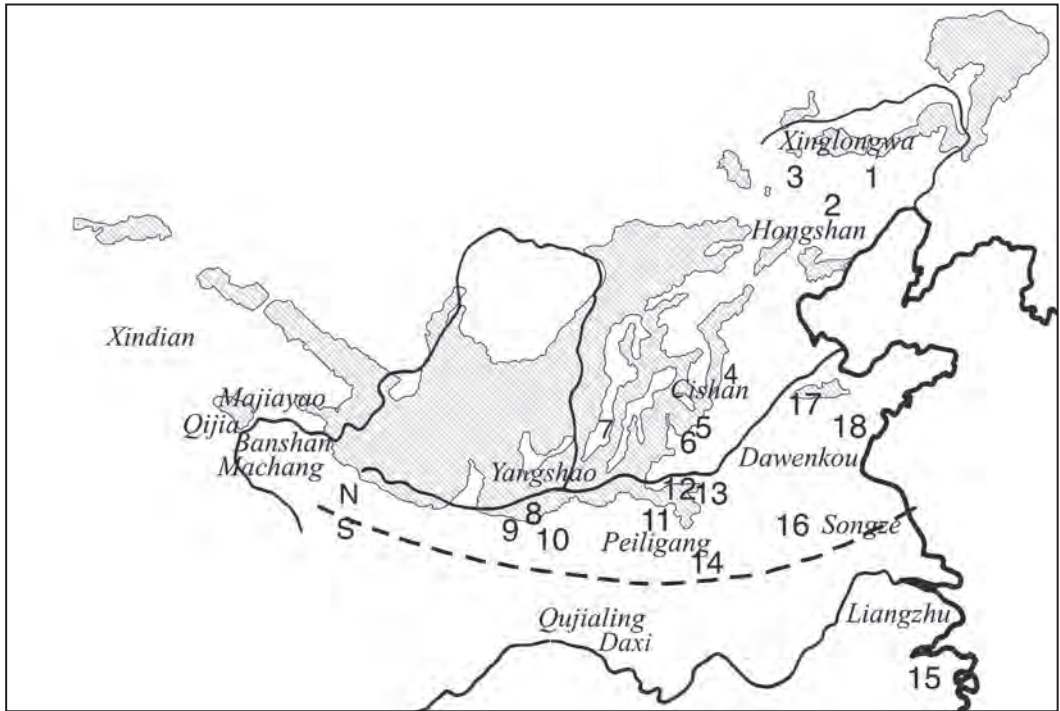
Figure 6.3 Late Jomon stone circle features at Oyu

The large stone circle above is one of two at Oyu, now separated by a modern highway which disrupts the landscape relations and astronomical functions between the two circles – similar to problems encountered at Stonehenge. The Oyu Stone Circle Center and exhibition hall promote research and tourism at the site.

Each circle consists of concentric clusters of river cobbles (inner and outer), and each circle has a 'sundial' feature (photo) in its northwest sector. The cobbles were hauled from a river 7km distant. Excavations at one circle revealed a third ring, composed of pillared buildings with 4–6 postholes, just outside the outer cobble ring. These buildings were accompanied by pits rich in pottery and ceramic figurines, presumably used in rituals conducted at the site and then buried.



'sundial' structure



- | | | | |
|----------------|---------------|--------------|-------------|
| 1 Xinglongwa | 6 Yuanjunmiao | 11 Peiligang | 16 Yuchisi |
| 2 Niuheiliang | 7 Taosi | 12 Xishan | 17 Dawenkou |
| 3 Fushanzhuang | 8 Jiangzhai | 13 Dahecun | 18 Dazhujia |
| 4 Cishan | 9 Banpo | 14 Jiahu | |
| 5 Xishuipo | 10 Miaodigou | 15 Hemudu | |

Figure 6.4 Mid-Holocene sites across the China Mainland

Shaded sections indicate distributions of loess, generally demarcating the loess highlands. Sites are numbered; cultures are in *italic*. Sites do not necessarily belong to the nearest culture name. Dashed line is nominal division between north and south, determined by the Qinling Mountains and Huai River valley (see Figure 1.1).

The Loesslands tradition

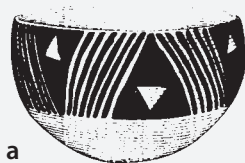
Yangshao villages

In contrast to the ecological complementarity of the Middle Jomon, socio-economic organization in the Loesslands seems to involve more self-sufficient villages based on millet agriculture and occupied year-round (Figure 6.5). However, our image of all Mainland Neolithic villages is skewed by the prominence given to the Yangshao culture sites epitomized by Banpo. Such villages generally stood on river terraces, positioned close enough to rivers to obtain water but far enough away to avoid flooding.²⁸ Their organization was concentric: the center served as a plaza, surrounded by houses and enclosed by a ditch. Even modestly deep and wide village ditches represent a substantial investment of labor in the landscape and argue against the shifting village system that was once postulated for these millet-

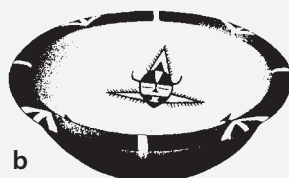
BOX 6.1 Design and shape of Mainland Neolithic ceramics

Painted pottery designs of the Loesslands

Painted vessels are relatively rare compared to textured pottery, but changes in painted designs demarcate different phases. Banpo bowls often bore angular geometric (a) or naturalistic designs (b), especially on their interiors. Dahecun ceramics sport a series of unique celestial symbols, such as stars, whereas Miaodigou designs are formed with parallel curvilinear lines, cross-hatches and geometrics with repetitive 'ribbons', some interpreted as flowers (c).



a



b



c

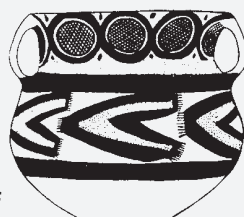


d

In the far northwest, Majiayao curvilinear designs – especially large spirals and thin parallel lines – dominated the geometric aspect (d). In Banshan and Machang cultures, large jars were decorated with toothed spirals and bands, gourd- or leaf-shaped designs, and areas filled with mesh or checkerboard patterns (e). These tended to be arranged vertically on the vessel shoulder in the Banshan tradition, but horizontally around the jar in the Machang tradition (f). The latter tradition is also noted for its anthropomorphic elements.



e



f

The painting of pottery continued in the far northwest long after the transformation from Yangshao into Longshan cultures in the central Mainland. In the early Late Holocene, the designs of the Qijia culture reverted to angular geometrics, with panels organized vertically. Contemporaneous with the Bronze Age Shang and Zhou civilizations, the ceramics of the Xindian culture of the Gansu Corridor were characterized by banded decoration interspersed with twiddle or animal-horn-shaped sketches (g).

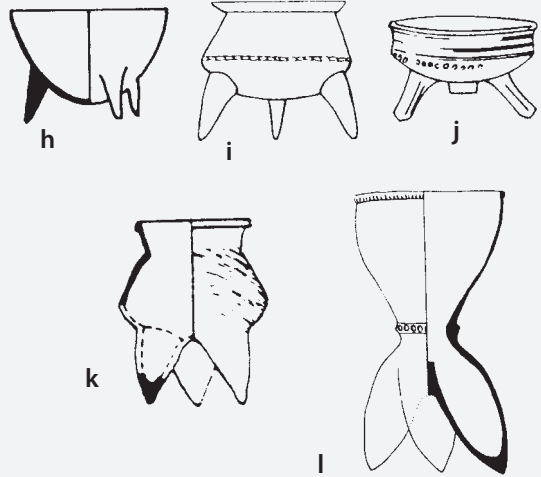


g

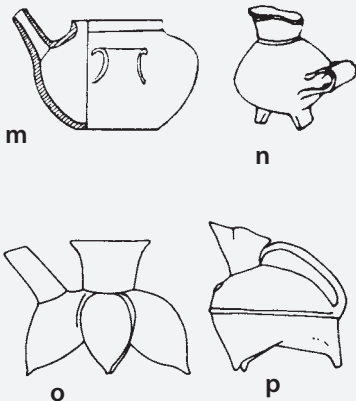
Vessels not to scale. See Table 1.1 for cultural successions.

Distinctive shapes of the East Coast

The tripod is a vessel shape considered to be peculiarly 'Chinese'. Solid-legged tripods made their appearance early in the Neolithic, as at Cishan where they were typically shaped like deep bowls (h). By the Middle Neolithic, they were ubiquitous in the East Coast cultures of Songze and Dawenkou, tending to occur in a pair of shapes: narrow-necked pots (i) and shallow bowls (j). Also, the beginning of the Middle Neolithic saw the emergence of the hollow-legged tripod (k), perhaps an adaptation of the typical mammary-shaped Yangshao water bottle (see BOX 5.1).



These new hollow-legged tripods were used to heat liquids; some might have had a perforated bowl set into their openings to steam cereals – usually thought to be rice. The Late Neolithic Longshan cultures combined the perforated bowl and tripod as a composite steamer (l).



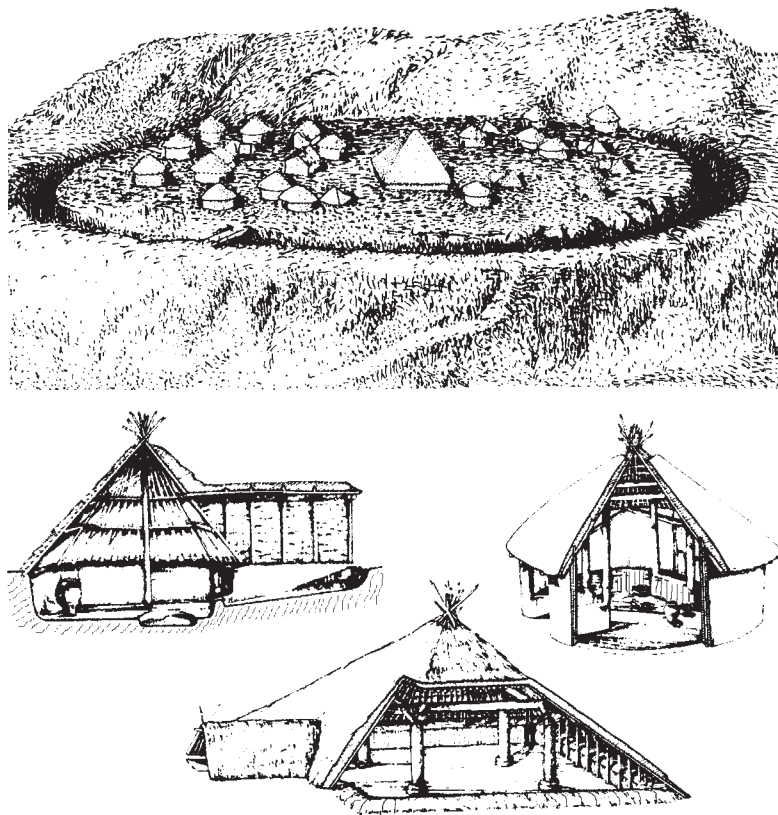
In the Middle Neolithic, a variety of pitchers and beakers were developed in the East Coast cultures, suggesting a strong interest in social drinking. Early pitchers had round or flat bottoms or borrowed the three solid legs of the tripod (m, n); in the Late Neolithic, the hollow-legged tripod was adapted into a spouted pitcher (o, p). Animal pitchers (u) are exceptional.

Beakers took a variety of shapes (q, r, s), with the pedestaled cup as a delicate version (t).



Figure 6.5 A sketch of Banpo village

Well known via its site museum on the tourist route in China. Pit-buildings thatched to the ground with covered entrances were accompanied by those with wattle-and-daub walls, a type unknown in the Pen/Insulae.



growers.²⁹ Such ditches had various possible functions: offering protection (against enemies, floods, wild animals), or serving to pen in domestic animals, or demarcating the living space as separate from burials and pottery kilns beyond the ditch, though both of the latter were sometimes sited in the central plaza.

Spatial organization of Yangshao villages and burials is often interpreted in terms of 'clan' or 'lineage' formation, as seen at Yuanjunmiao (Figure 6.6). But some sites have more than the two divisions proposed for Yuanjunmiao and for Jomon sites as discussed above. The Early Yangshao occupational level at Jiangzhai is nominally divided into five sectors (Figure 6.7),³⁰ each having its own large building (ranging 51.7–125.6m² in size) around which cluster smaller buildings (1.8–35.7m²). Reanalysis of this occupational phase has confirmed that the large structures are indeed residences rather than communal buildings, probably housing "lineage heads and their respective families."³¹ Population estimates for the site are between 450 and 600 people.³²

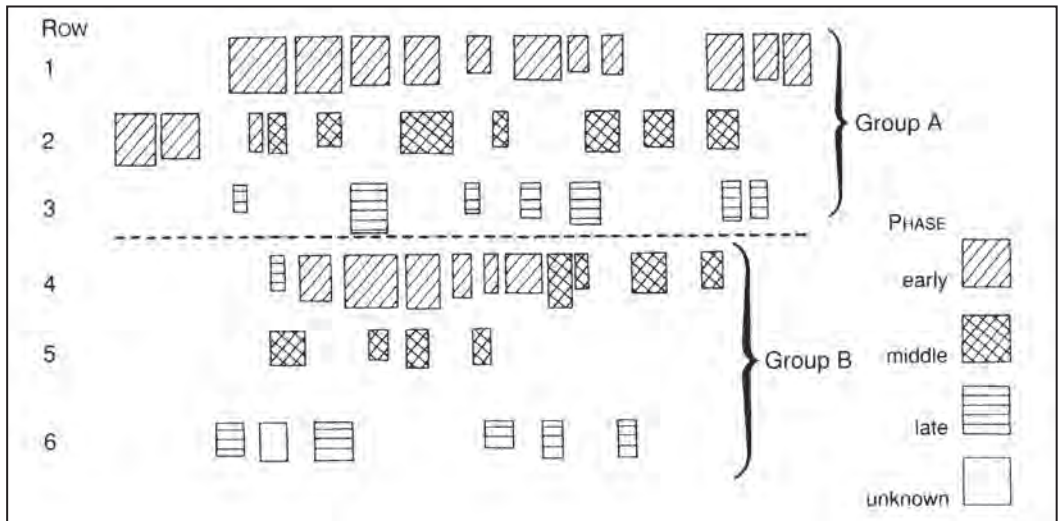


Figure 6.6 The Yuanjunmiaomiao cemetery

Two groups of graves (A) and (B) were established in rows through three phases: early, middle and late. The fact that these groups are spatially separate but show parallel interments through time suggest they belong to two different lineages or clans.

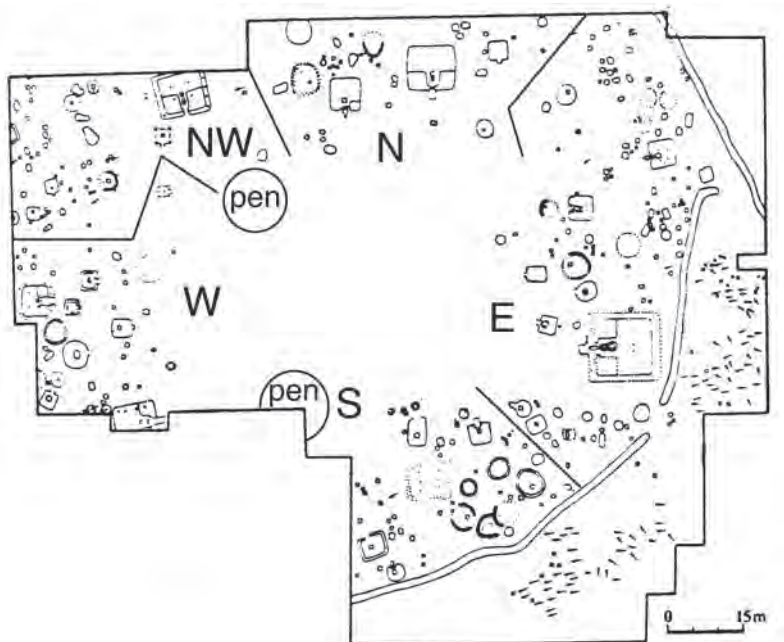


Figure 6.7 Spatial organization at the Jiangzhai site

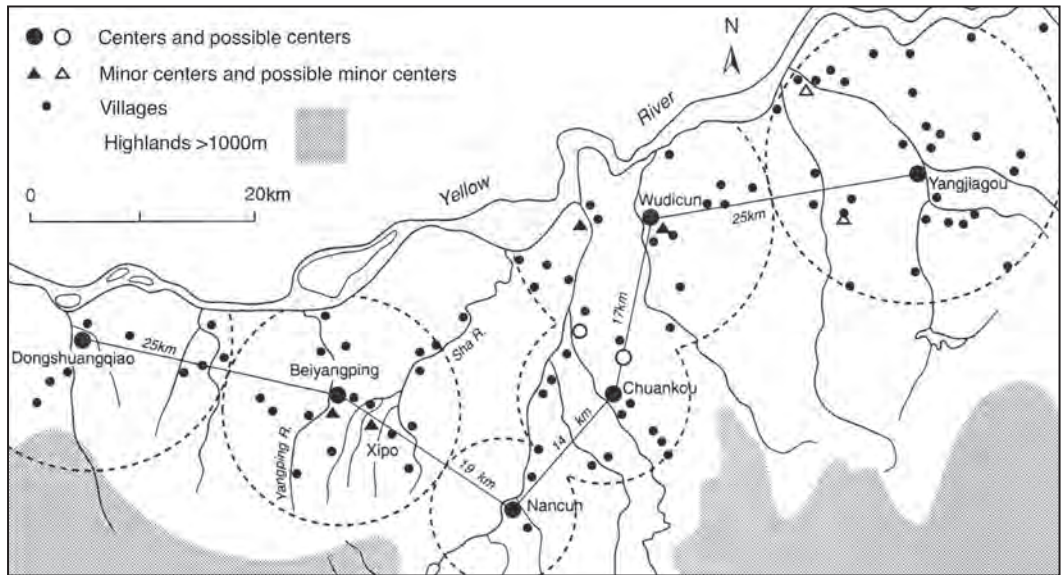
Divided into five sectors (dividing lines added), houses and their associated storage pits in each sector clustered around one large house assigned to a 'lineage head'. Child jar burials were discovered between the houses and in the burial grounds to the southeast; divided into two groups, the burial grounds might have also belonged to different lineages, but the grave goods indicate nothing but egalitarian social relations. Aside from artifactual remains, two pens for keeping animals, plus two sheds for storing nightsoil and seven pottery kilns (not shown), attest to the site's economic activities. The kilns were located both inside (one each in Sectors E and W) and outside (four to the southwest, one to the northeast) the village ditch. A pottery 'workshop' is also tentatively identified in Sector S.

Through ingenious analysis of Jiangzhai's storage pit capacities, the village was deemed self-sufficient in agricultural produce (millet); there were, however, enough differences among the houses in subsistence and craft production (see Appendix H.1) to have led to intrasite exchanges at the household level. Contrary to previous hypotheses, no evidence indicated that the lineage heads controlled either production or distribution. Decisions of resource intensification were made at the household level, presaging the privatization of resources seen in the later Neolithic.

Whether all large buildings in Yangshao culture house clusters are the houses of kin-group heads is not yet known. Several Yangshao longhouses have been interpreted as communal living areas, giving weight to the idea that Yangshao was a communally oriented society.³³ The advent of multi-room houses may also indicate communal living, but functional elaboration is another possibility. It is rare to recover in situ artifact remains from house floors, but one rectangular wattle-and-daub house of the Late Neolithic Qujialing culture yielded materials suggesting that its two rooms were used differentially: the western room for food preparation/storage and tool maintenance, the eastern room for sleeping and women's sewing activities.³⁴

Analyses evince a modest increase in house size itself through the Yangshao and its derivative cultures, accompanied by a greater increase in utilitarian objects used within. Among these objects, food vessels and pottery-making tools are conspicuous, leading to the interpretations that feasting is an aspect of wealthier households, as similarly surmised from burials, and that some households were specializing in ceramic production.³⁵ Houses at the late Yangshao site of Xishan ranged from 30m² to 100m², with evidence of prestige goods in the larger ones³⁶ – perhaps indicating intrasite social ranking. The trend toward social differentiation, however, is far more pronounced in the East Coast ceramic cultures, as we will see below.

Differences in site sizes have led some researchers to postulate integrated regional settlement patterns usually of one large and several small sites (two-tiered) or one large, a couple of medium and many small sites (three-tiered). Site surveys in the Huanghe Corridor have revealed such two- and three-tiered settlement systems extant in the Yangshao phase (Figure 6.8).³⁷ The large central sites measure 45–90ha in size, overseeing territories of up to 570km². A simple two-tiered system could indicate, for example, mother-daughter villages, where one larger and more functionally differentiated site is surrounded by smaller hamlets and related through kinship. A three-tiered hierarchy usually implies the presence of a chiefly figure in the largest site, coordinating a regional system of ceremonial and economic activities; outlying sites are subsidiary centers and villages.



As yet, however, there is little evidence of chiefly burials or data other than site size to elucidate the function of these various Yangshao sites.

Loesslands pottery

Yangshao village sites are renowned for the pottery kilns that were used to fire both textured pottery and painted wares. These may not represent the earliest kiln structures (the Peiligang site might claim those), and much textured pottery may still have been fired in open bonfires. But the Yangshao kilns are true updraft kilns where the firebox is placed lower than the firing chamber – initially offset but later directly underneath. This style of kiln was formalized by the Late Neolithic with a branching flue system (Figure 6.9); a secondary firing chamber floor was perforated over 10% of its area to allow the circulation of heat from the flues below.³⁸ These kilns were often dug directly into a loess bank and so required no extra architectural construction. Loess, containing much mineral iron, also provided the main clay for forming the ceramics. These were then fired in an oxidizing (lots of oxygen) atmosphere, giving them a red hue. The color represents a chemical change in the clay body, when oxygen combines with iron to form iron oxide, turning it red.

Pots were formed in a variety of ways, beginning with coiling of clay ropes and then smoothing or beating them into shape. The very large jars of the Late Neolithic Banshan culture have been shown by X-ray (xeroradiography) to have first been coil-built then

Figure 6.8 Yangshao two- and three-tiered hierarchies in the western Huanghe Corridor

This was one of the most densely occupied areas on the Neolithic Mainland. Exercises designed to determine whether any particular settlement pattern shows indications of site hierarchy and its degree of integration are: the measuring of site sizes, expressing these sizes in histograms, dividing up the distribution into size classes, and then mapping them onto the landscape. Note that the large sites are strung out relatively equidistantly along the Yellow River, each in their own tributary stream valley.

beaten with a paddle on the outside against a small anvil held on the interior surface (Figure 6.9, lower right). In the X-ray, the coils can be seen in the neck and the beaten pattern on the body shows up as a diamond shape – but both are completely invisible on the smooth painted surface of the pot.³⁹

Once pots were coiled, they could be finished on a turntable or slow wheel. This allowed rims to be smoothed or decoration to be applied continuously around the body. Some fired clay objects found at Yangshao sites have been interpreted as slow wheels (Figure 6.9, lower left), where a deep well in the center received the pot, and a lipped rim could be used to rotate the whole structure on its base. Yangshao painted pots are often undecorated on their lower parts, which could be explained by their positioning inside the well, making

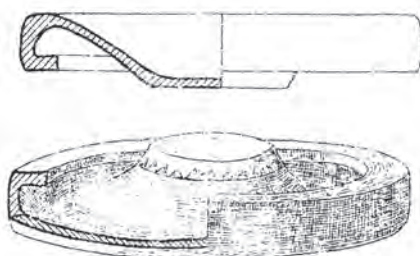
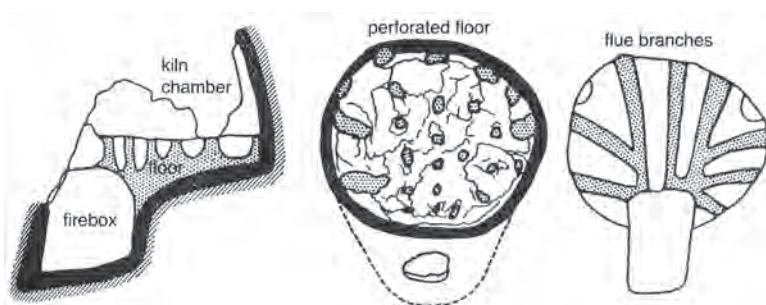
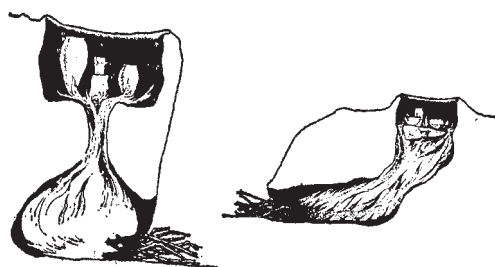
Figure 6.9 Mainland Neolithic kilns and ceramic production tools

Right: two simple updraft kilns at Banpo

Middle: more complex structure at Miaodigou, seen in section (left) and in two plan views (right) of the separate perforated kiln floor and branching flue system

Below left: handheld anvils (<10cm) for pressing against the inside of a pot while beating the outside to form the shape

Below right: a turntable; the hollow interior takes a pot to be decorated while turning the outside rim. The lower sketch shows the turntable upside down with the rotating base in the center.



that lower area inaccessible.⁴⁰ Throwing small vessels on a fast potter's wheel began in the north in mid- to late Yangshao; this implies the existence of ceramic specialists because of the capital investment in equipment and the considerable skill needed to throw a pot.⁴¹

The East Coast tradition

Dawenkou villages

Dawenkou sites are spread around the base of the Shandong peninsula into the Huai River drainage and straddle the nominal boundary between millet and rice agriculture. In addition to cropping, hunting and pig raising were important early subsistence activities, with pigs becoming increasingly important resources for feasting over time.⁴² Sites often occupied the alluvial flatlands themselves – though they were situated on river levees or artificial mounds, avoiding the marshes and swamps as much as possible.

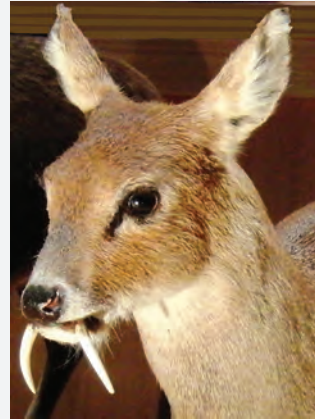
Yuchisi is a late Dawenkou mound settlement, surrounded by a moat, occupied in the early 3m BC.⁴³ Houses followed the earlier Xinglongwa pattern: linked square or rectangular houses in rows – in vast contrast to Jiangzhai, though square(-linked) houses become more common across the Late Neolithic landscape. Nine house groupings have been identified, each with a baked-clay courtyard in front, each having one house with pottery manufacturing equipment, and each occupied by one wealthy family as represented by the number of food vessels. Yuchisi is one of the few Dawenkou sites where rice outweighed millet,⁴⁴ possibly contributing to greater social differentiation. Richer burials may be either male or female, but they generally correlate with the wealthier houses. It thus appears that the village supported several kin-groups that were headed by families with greater resources. Yuchisi was surrounded by 16 smaller sites without pottery-making facilities. It therefore seems to have functioned as a central place in a two-tiered site hierarchy.

At the Dawenkou site itself, a 400-year burial record shows clear trends toward richer, more elaborate furnishings and structures through time, which are interpreted in terms of rank.⁴⁵ The highest-ranking burials were given ledges, resulting from infilling the grave pit up to the level of the coffin lid and then depositing goods on the packed-in earth. Burials equipped with such ledges averaged twice as many grave goods as those without. Another structural elaboration was the use of wooden coffins (BOX 6.2); grave goods were twice as abundant in later wooden-coffin burials as in earlier phases, illustrating increasing 'conspicuous consumption' of material objects through time. High-status grave goods at Late Dawenkou

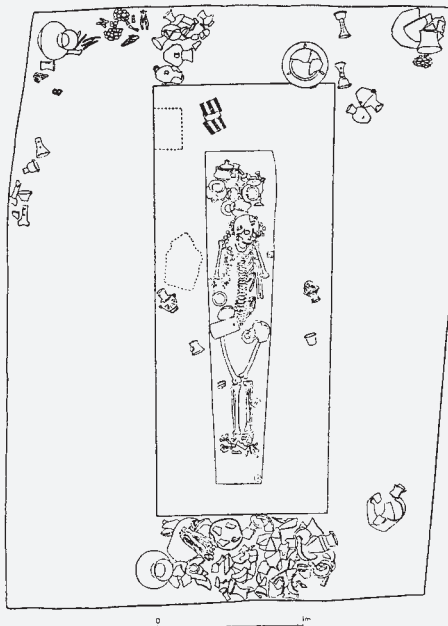
BOX 6.2 Dawenkou and Longshan burial facilities in Shandong

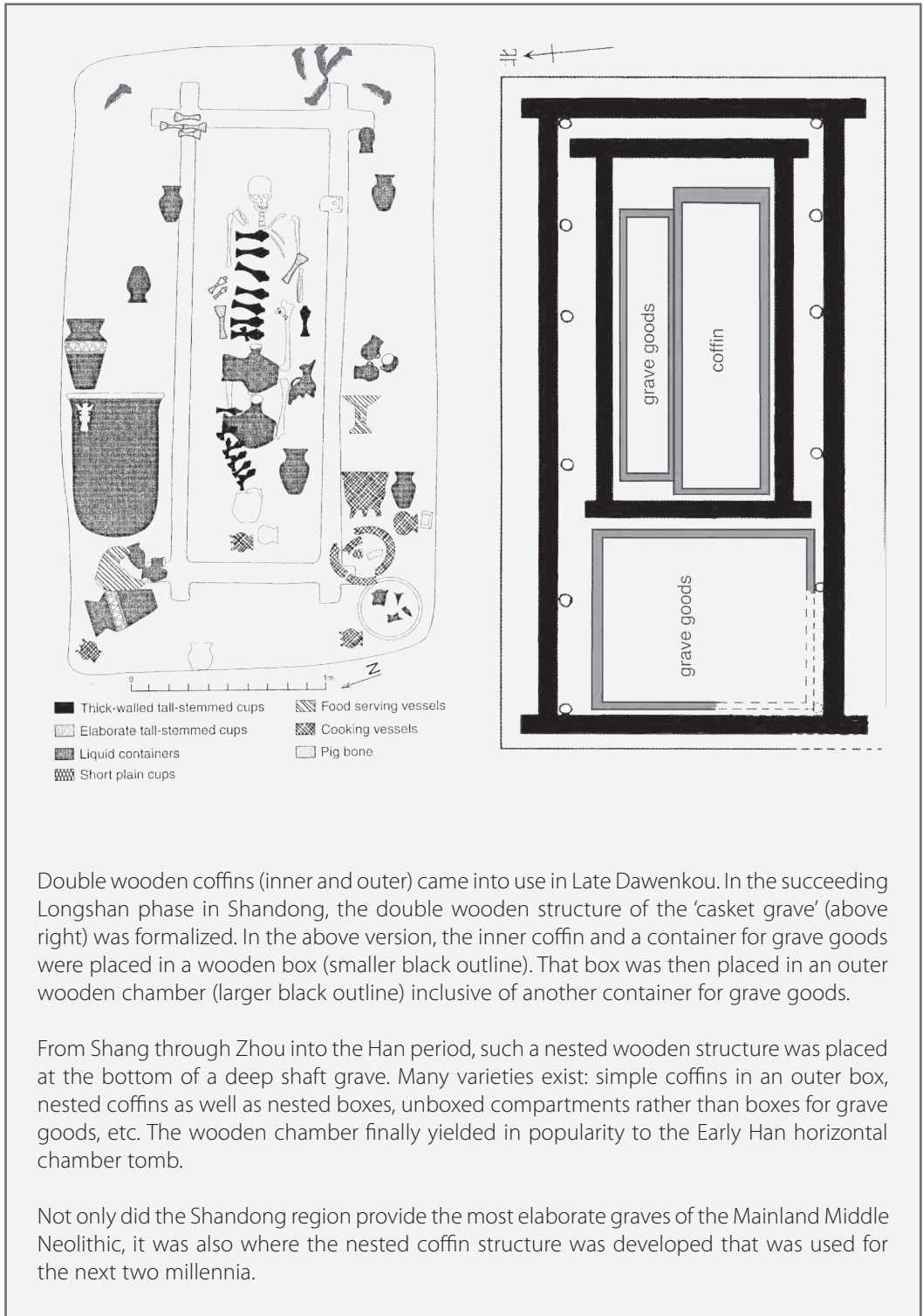
M10 (below), belonging to an elderly female, was the richest grave in the Dawenkou cemetery; it yielded many beadstone and bone ornaments and tool imitations including two *yue* axes as well as fine eggshell-thin ceramics. The grave had a wooden coffin and ledges on which to place the grave goods, indicating that it was of the highest status. This rich grave suggests that a male-gendered hierarchy had yet to develop.

The Dawenkou-period Grave M17 at Dazhujia (facing page, upper left) belonged to a male and contained cooking and serving vessels, many tall-stemmed cups, and six pig mandibles – presumably from a feast. The large, deep jar to the left may have been used for fermented beverages; it bears an insignia that may relate to early writing (see BOX 1.1).



A large majority of the Dawenkou deceased, both male and female, held one or more tusks from water-deer (above) in one or both hands.





sites included turtle shells, ivory or bone cylinders, jades, thin-walled pottery, pig mandibles and water deer tusks; some of the ceramics bore incised signs or 'pictograms' (see BOX 1.1-B),⁴⁶ which suggest early strides toward a writing system. Ten different pictograms are known, and some also occur on Liangzhu pottery in the south.⁴⁷ Did the peoples of these different cultures share understandings of the motifs?

East Coast ceramics

The East Coast tradition of pottery production drew on the early functional differentiation of ceramic vessels in the southern rice-growing culture of Songze, with pitchers, footed bowls and pedestal perforations already in evidence. Much of this is grayware, indicating firing in a kiln with reduced oxygen (reduction firing), though no southern kilns are known from this time period. The emphasis on serving dishes is elaborated in the black pottery of Dawenkou culture and intimately connected to social feasting.

Dawenkou pottery was often manufactured in parts – legs, handles, necks, bodies – and then stuck together before firing. Some of these parts could be thrown on a fast wheel, used since Hemudu times;⁴⁸ in the Longshan period, a high percentage of elite wares were wheel-thrown, allowing the production of extremely thin bodies 1 to 2mm thick. These 'eggshell wares' were not fit for real use. The deposition of such fragile ceramics is the main marker of status. Specific mortuary ceramics appear in late Dawenkou as crude and/or incomplete vessels; this trend intensifies in the Longshan, when the vessels became miniaturized.

Blackwares were apparently produced in two different ways in East Coast ceramic cultures.⁴⁹ In Dawenkou proper, ceramics were intentionally carbonized by starving the kiln of air to produce a black smoke that penetrated the body surface. However, in the Late Neolithic Liangzhu culture, organic material and/or charcoal was mixed into the clay body itself, as it was at Hemudu. The vessels were then reduction-fired and smoked for good measure. Many of the blackwares were subsequently burnished to give a high shine to a glossy surface.

In contrast to the blackwares, experimentation with kaolin clay produced whitewares. This tradition matured in the Shang Dynasty with carved designs inspired by bronze decoration (see BOX 9.1).

The production of the fabulous pedestaled cups in the Dawenkou and Longshan cultures appears to have been a 'sponsored' activity:⁵⁰ rather than permanently attached specialists, families sponsored craftspeople to make ceramics for certain occasions such as feasts or

funerals or for a certain span of time. This implies that ceramicists existed who could make special wares but who probably did not work full-time at their craft. The organization of production was at the household level, without dedicated workshops but certainly requiring specialist skills.

The Hongshan enigma

The Middle Neolithic Hongshan culture is renowned for its jades and “Goddess Temple”, and it features the earliest monumental architecture in East Asia – in the form of mounded burials containing jades (Figure 6.10, upper left).⁵¹ Located in the northeast, the Hongshan culture shows elements of both Loesslands and East Coast ceramic traditions: painted designs mixed with footed pottery and textured pottery. Settlements are usually positioned on hillsides or bluffs and often consist of rows of houses not unlike Xinglongwa before it,⁵² or square pit-houses interspersed with ash pits. Subsistence consisted of millet, *Sus* and deer, signifying a mixed economy, while the tool repertoire is rudimentary. Stone and bone tools give insight into the varied activities undertaken: hunting, digging, reaping, grinding, woodworking, and leather-working.

Investigations at the Hongshan culture site of Fushanzhuang recovered evidence of incipient household ‘specialization’ and barely emergent status differences (Table 6.1 and Appendix H.2).⁵³ Interestingly, houses classed as ‘normal’ stood near the central plaza (inner city); despite containing many agricultural tools, they were further from the fields. Prosperous households were located at a distance from the central plaza (suburbs) and contained the remains of stone tool processing. Investigators envision both intra-site exchange, as found at Jiangzhai, and the trade of goods with other villages – the logical items being stone tools for fine ceramics.

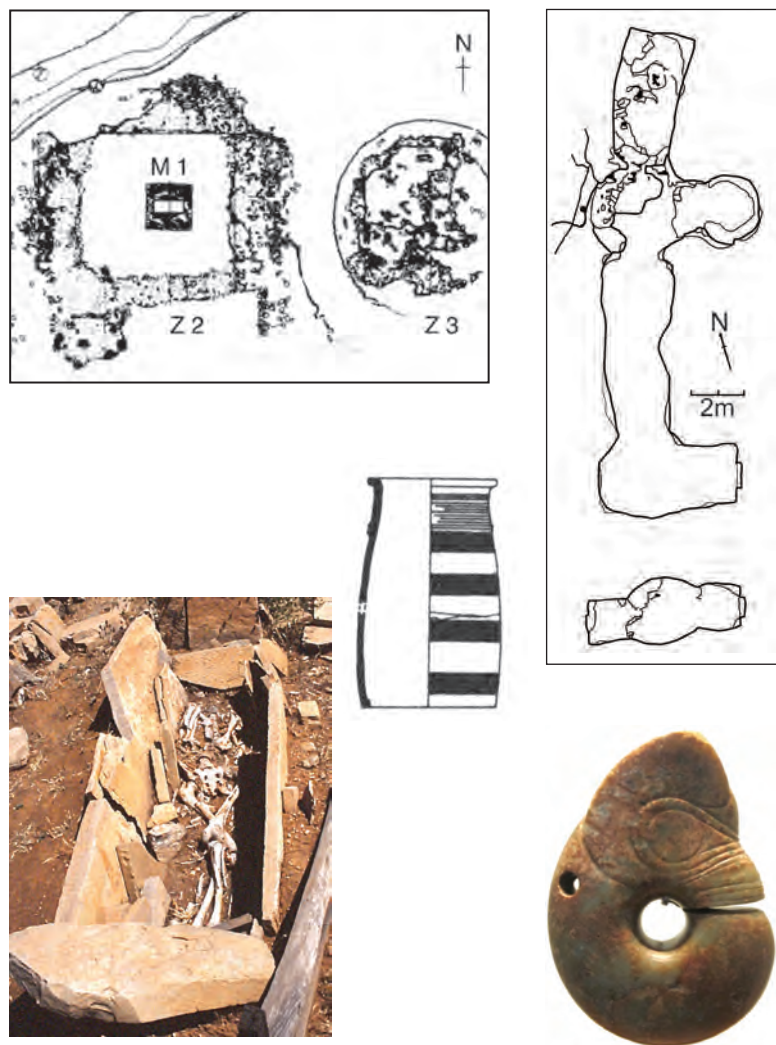
This incipient status dichotomy at the local level contrasts with a hierarchy based on ritual authority exercised in supra-local clusters of sites around a ceremonial center.⁵⁴ Niuheliang is one such center, where a hilltop is demarcated by a low stone curb, overlooking an elongate pit-building with annexes (Figure 6.10, upper right) and an arched roof made of wattle-and-daub. Inside, designs were painted on the stucco. Only one arm of this so-called ‘temple’ has been

	‘wealthy’ houses	normal houses
economics	stone-tool production	agricultural production
pottery	non-local fine-paste ceramics	textured pottery
location	at edge of site	near central plaza

Table 6.1 Status divisions, production and exchange at Fushanzhuang

Figure 6.10 The Niuhejiang site, a ritual center of the Hongshan culture

In the Goddess Temple (far right), fragments of stucco sculptures of females were found in one excavated arm of this oddly shaped semi-subterranean building. Above are two ceremonial platforms (Z2: 18.7 x 17.5m, Z3: 20m diameter) with a stone-enclosed burial (M1) in the square feature, similar to the one shown at bottom left. These constructions were surrounded by curbs made of bottomless painted cylinders (middle). Jades comprised the main burial goods. Some interpret the pig dragon form (bottom right) as an alligator fetus coiled in the egg – interesting in relation to BOX 6.3.



excavated, yielding various parts of female stucco sculptures and a boar's mandible. In the valley below and the surrounding hills stand several ceremonial platforms and mounded tombs of earth-covered, stacked stone structures containing cist burials. This whole complex covers 50km², and there are no residential facilities within.

Hongshan came to an abrupt halt by 2800 BC and did not lead to further complex development. One hypothesis for its collapse notes that Hongshan developed in a very hot, dry phase (locally) in the Middle Holocene that may have limited food production, leading to an 'overemphasis' on ritual in response to environmental stress that resulted in the mismanagement of resources.⁵⁵

Dimensions of social status

Age and gender are the original differentiators in human society. Even in egalitarian societies, one age group or gender will often be granted higher status in a particular society, while individuals, such as a good hunter or a good potter, may be accorded status recognition for special talents or achievements. These kinds of status attribution contrast with those of rank, where particular families might prosper and achieve dominance over their neighbors. When such dominance is institutionalized, heads of those families or lineages will emerge as chiefs, and members of the community become ranked in terms of their relationship to the chief. The mid-Holocene Mainland archaeological record offers examples of all of these types of social differentiation.

Gender distinctions

Already in the Peiligang culture, burials are noted to have different grave good complexes: spades, sickles and axes assigned to males, and quern sets assigned to females.⁵⁶ The deep history of the multi-generation cemetery at Dawenkou further documents gender differentiation of tasks over time: less than 40% of tool types were gender-specific in the Early to Middle Neolithic, but this increased to near 80% in the Late Neolithic.⁵⁷ A survey of several Late Neolithic East Coast burial sites showed that although few artifact categories were exclusively associated with one gender, men and women were buried with differing tool kits (Figure 6.11).⁵⁸ This means that men

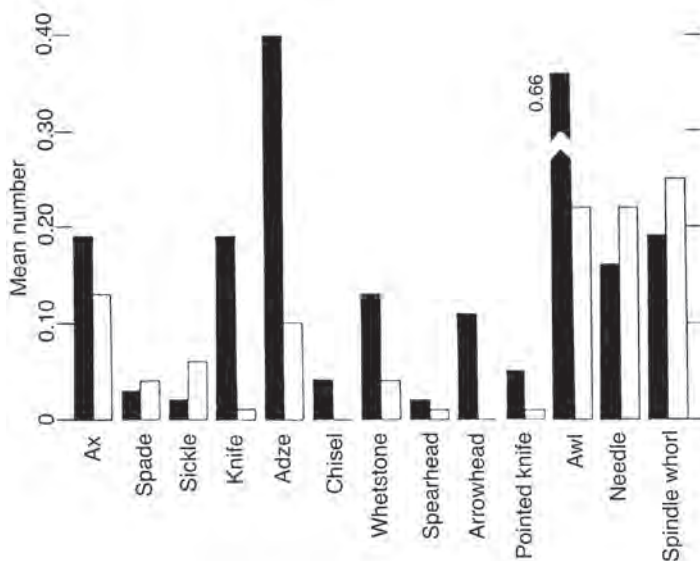


Figure 6.11 Gendered burial data informing on tasks and social organization in Late Neolithic East Coast sites

Males (black bars) tended to be buried with woodworking tools (axes, adzes and chisels), hunting tools (spearheads and arrowheads), whetstones and awls, while females (white bars) possessed greater numbers of agricultural tools (spades and sickles) and sewing implements (needles and spindle whorls).

and women were gradually more isolated and specialized in their daily functions, serving to separate the sexes in social interaction.

The Chinese taste for Marxist theory has led to a tendency to see social evolution universally progressing from matriarchal to patriarchal. This transition proposed by Lewis H. Morgan via Karl Marx is now outdated both in China and in the West, but judgments based on actual data rather than just theory are interesting.⁵⁹ Yuanjunmiao burials, discussed above, are a case in point: multiple burials of 3–5 persons or more were the rule, usually all the same gender; children were often buried with adult females.⁶⁰ The female graves were also more richly endowed than males,⁶¹ leading to the interpretation that Yuanjunmiao was matriarchal. Conversely, the prevalence of ceramically rich male graves in the East Coast ceramic sphere likely indicated the emergence of patriarchal society.⁶²

Data from throughout the northern Mainland Neolithic suggest that the number of grave goods interred with females is often *more variable* than the number interred with males.⁶³ What this may mean is not yet clear, and explaining it will be a major task of future gender study. Two recent investigations of gender relations in several Late Neolithic cemeteries demonstrate that not only each culture but also each community may have had distinct patterns of male/female relationships.⁶⁴ Such nuanced findings prevent us from generalizing across the whole of the Mainland Neolithic.

Ritualists

Many Mid-Holocene sites across East Asia yield items of ritual importance: for example, the figurines, menhirs and timber structures of Jomon, or the female sculptures and ‘temple’ structure of Hongshan. Most early societies do have ritualized behaviors that are manifested in the material culture, but these are often carried out at the household or community level. The recognition of specialists who are entrusted with the fortunes of the populace is a rather different matter. The emergence of shamans in East Asian societies may be the first occupational distinction in social development.

Shamanism has been a feature of East Asian society throughout written history⁶⁵ – the *wu* and *miko* of ancient China and Japan, respectively, and the historic *mudang* of Korea and *itako* and *yuta* in Japan. Paintings on Yangshao vessels have long been interpreted as masks worn by shamans or as representing deities (Figure 6.12 upper); note the fish motifs indicating the importance of inland fishing.ⁱⁱⁱ Ceramic masks are occasionally seen among Late and Final

ⁱⁱⁱ Research on fish remains in Chinese archaeological sites is just now commencing, so we can look forward to more data anon.

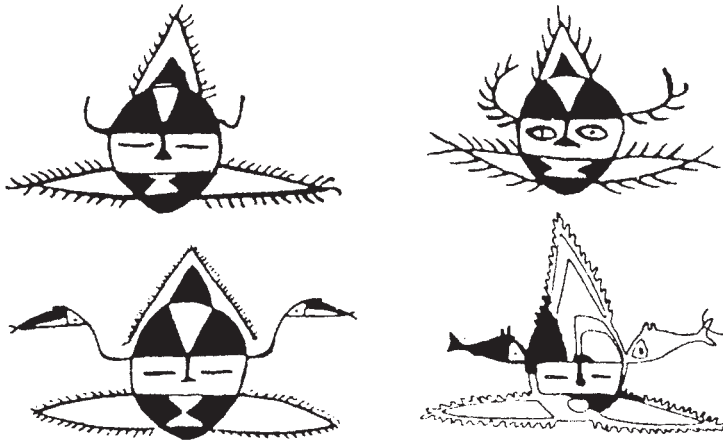


Figure 6.12 Ceramic mask representations of ritual specialists in Yangshao (upper) and later Jomon (lower)

Fish motifs in Yangshao show the importance of freshwater fishing. Some Jomon masks seem made for wearing while others are designed to be held on sticks. Face pieces (ears, nose, etc.) have even been recovered individually for tying onto the head.



Jomon ritual goods (Figure 6.12 lower). In many ethnographic societies, ordinary men (usually men) often take on ritual duties (such as masked dances) in ceremonies, so it is difficult to identify, from these objects alone, specific individuals as shamans who were granted special status.

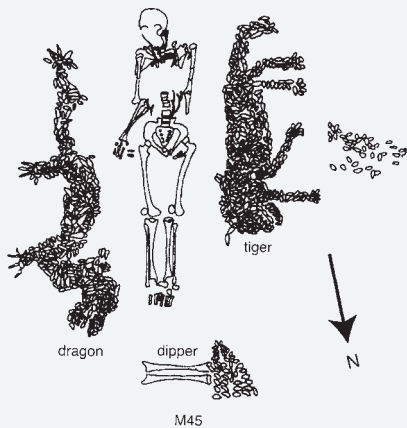
Burials at Jiahu (Peiligang culture)^{iv} yielded spectacular grave goods regarded as ritual implements: leg bones of cranes made into vertical flutes, and turtle shell rattles made by thonging together

^{iv} There is currently a movement to treat the Jiahu-like sites as a separate Jiahu culture.

BOX 6.3 Dragons, alligators, water and rain

The dragon motif is one that became important in historic Chinese civilization and spread to many other countries. In general, Chinese dragons are beneficent animals associated with water; they represent goodness, strength, generosity and wisdom and bring good fortune. In the later dynasties, the five-toed dragon was exclusively a symbol of the Chinese emperor, and its use was limited to representation on his accoutrements – ceramics and brocade clothing.

Alligators, as water animals, are considered a possible source of dragon imagery. Dragons are thought to live underground, as do alligators. Chinese alligators (*Alligator sinensis*) once inhabited much of the freshwater marshy areas on the east coast of China, though only 200 or so remain in the wild. During the mid-Holocene warm period, their range probably extended up to the Shandong peninsula, where alligator bones have been excavated from Dawenkou sites and alligator skins from burials.



Already at Chahai (Xinglongwa culture), a dragon image was laid out in stones. At the Xishuiipo site (Yangshao culture), freshwater mussel-shell mosaics picturing a tiger and a dragon sandwiched a supine male burial (left). The 'dipper' at his feet was made of shells with a handle composed of two human humerus bones. Though no high-value goods mark his status, the man might have been a shaman with at least two references to water (the dragon and dipper), supported by the fact that the dragon and tiger later became two important Daoist symbols.

Alligator skins might have been traded inland for making drum heads, as at Taosi (Longshan culture), and such drums were also found in Shang tombs of early state royalty. Why alligator skins on drums when pig skins were readily available? Since millet farming depended on natural rainfall, rain-making rituals would have been a natural response. And here is where further attributes of alligators become important: when alligators call to each other, their bodies are submerged but heads and tails are exposed above water; when calling, the alligator spews a spray of water which falls back in shower-like droplets. This alone could have provided a rain-making model, but there's more:

When thunderstorms occur, alligators answer the thunder with sharp belching calls! A noted difference between American and Chinese alligators is that the former growl but the latter have short, staccato vocalizations. Thus, an alligator-skin drumhead that emits such staccato sounds could suggest an alligator call. If alligators answer thunder, maybe thunder will answer alligator calls – was this logic operative in choosing the skin for drumheads? Used with the proper ritual, such drums might have been believed to have the power to call down rain.

shells and plastrons to hold pebbles inside. Some of the shells were inscribed with signs that might be the beginnings of writing (see BOX 1.1). Turtle shells were found in 23 of the excavated 349 burials,⁶⁶ possibly belonging to shamans except that some of the thonged shells contained bone needles or bone awls instead of pebbles – indicating multi-functionality. Turtle remains found in houses and rubbish pits suggest turtle was also eaten – it's still a favorite in China today for its medicinal properties. Turtle plastrons became important for oracle bone divination in the protohistoric period (see Figure 9.2).

Another water animal, the alligator, seems to have played an important part in northern rituals and may be the source of dragon imagery in China (BOX 6.3). Alligator skins were interred in rich Dawenkou graves,⁶⁷ and the Taosi site (Longshan culture) even yielded drums with alligator-skin heads. In this society shamanic powers might have helped to define rulership.

Social hierarchies

The co-option of community ritual by emerging elites claiming access to the gods is one worldwide strategy used to raise a family's social status. The conversion of emerging chiefs, who could communicate with local deities, into ancestors (once deceased),⁶⁸ who were worthy of ritual supplications themselves, is thought to have solidified hierarchical arrangements of lineages into conical clans. The historical Chinese tradition of 'ancestor worship' is regularly projected back onto the Neolithic cultures of the Mainland, but in fact, it is not clear when the *worship* of the deceased as ancestors developed out of the *rituals* to ensure the deceased a good afterlife. That the path to chiefly status and ancestor worship was not smooth is illustrated by the Hongshan.

Hongshan was one of the first societies to entail social distinctions in both house remains and burials, as seen above. The fascinating aspect of Hongshan is that these two sources of data revealed different methods of ordering status, by ceramic wealth in households but by burial jades at ritual sites. There is as yet no indication that members of prosperous households were buried in the highly ritualized graves. Although Hongshan has been referred to as East Asia's earliest 'state',⁶⁹ anthropological analyses determined it to have had "a clear gradation of statuses, but no clear-cut ranks or stratified classes."⁷⁰ Rather than an aggrandizing society, Hongshan has been interpreted as "group-oriented", stressing group solidarity.⁷¹ Thus, the rituals involving female figurines were more likely invoking female deities than lineage ancestors – unless Hongshan was a female-dominated society.

	large	medium	small
% of graves in size class	1.3%	11.4%	87%
grave size	3 x 2.0–2.7m	2.2 x 0.8m	2 x 0.4–0.6m
gender	all male		
burial	wooden coffins	wooden coffins	
preservative	cinnabar	cinnabar	
grave goods	100~200; elaborate pottery, jades, wooden artifacts, pigs	few dozen	few or none
top-class goods	dragon-motif ceramic plates, alligator-skin-headed drums, pottery drums, jades, chime stones, v-shaped knives, painted wooden vessels, whole pigs		

Table 6.2 Late Neolithic burial construction at the Taosi site, Longshan culture

The Late Neolithic site of Taosi tells a different story. There, a cemetery contained several clusters of burials, and each cluster consisted of three different-sized graves (Table 6.2). Thus, social groupings represented by a single burial cluster were internally ranked by grave size. The largest graves all belonged to males and had extraordinary amounts of grave goods deposited within. The distribution of grave sizes and furnishings suggests a pyramidal distribution of social rank, with only the top 1.3% given rich burials. These topmost-ranking burials yielded wooden and pottery drums with alligator-skin drumheads, suggesting ritual control as a corollary of high status. The ability to trade in precious goods such as alligator skins from coastal areas was probably part of the prestige and cachet attached to these leaders.

The importance of commensality

Dawenkou has long been known for extraordinarily rich burials containing huge quantities of ceramics and a variety of other so-called ‘prestige goods’ – items made of rare materials or requiring great skill to make. Unlike Taosi, however, the greatest numbers of grave goods could occur with any age or sex. Rather than reflecting hierarchical rank of the deceased, it has been hypothesized that vessel numbers reflect success in holding feasts hosted by the family.⁷² The ability to hold a feast, whether celebratory or funerary, was dependent on the family’s access to various resources: sufficient foodstuffs (especially pigs), labor in the form of prestige-good production, and social charisma. The bigger the feast, the more vessels and food remains (e.g., pig skulls) could be accumulated for eventual deposition in a grave. Thus feasting was a measure of transient wealth and status in Dawenkou, but it apparently did not lead to permanent hierarchical distinctions.

Deposition of ceramics in Dawenkou burials began as a means to provision the dead for the afterlife. As competitive feasting increased during Dawenkou, greater numbers of pig skulls were interred and more blackwares were commissioned from specialist potters. In a trickle-down phenomenon, lesser quality blackwares began to appear and were interred even in poor graves.

In the Dawenkou area during the Late Neolithic (Longshan culture), feasting continued as part of the burial ritual, but the eggshell drinking cups became an important burial item in their own right. As trade goods produced by specialists, they could be obtained only by the elite; these might have then been distributed to underlings, because the vessels occur in ordinary as well as wealthy graves. Such pyramidal arrangements suggest the emergence of status hierarchies, yet burials still showed no evidence of clear ranking.⁷³

Summary

The mid-Holocene archaeological record illustrates vast differences between cultures across East Asia in terms of the emergence of specialist craftspeople, status hierarchies, and trade goods systems. Middle Jomon, despite its elaborate material culture and wide-ranging exchange system, shows no overt social inequalities. On the Mainland, the development of sophisticated pottery production systems only translated into status hierarchy when the ceramics themselves were used for feasting – a practice that began in the East Coast Dawenkou culture and spread throughout the northern Mainland in the later Longshan culture. Households in several local societies have been designated as ‘wealthy’ by the number of ceramics found within, but clear ranking in burials was not a common phenomenon despite the wide variety of objects made of rare or valuable materials contained therein. Instead, feasting (in the east) and shamanistic powers (in the west) might have been the major routes to status differentiation.

Although some of the developments here – in ceramic technology and shamanism – have been followed into the Late Neolithic, most discussion of the 3m BC will be undertaken in Chapter 7, where we see the Shanghai Delta region involved in highly ritualized jade production while the landscape of the Yellow River drainage came to be dominated by walled sites – raising questions of urbanism, fortification, warfare and incipient state formation.

Further reading

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Chapter 7

Emergence and Decline of Late Neolithic Societies

(3300–1900 BC)

Introduction

Periodization

The years between 3300 and 2800 BC saw wide-ranging cultural succession with the transformation from Middle Neolithic to Late Neolithic societies (see Table 1.1). The shift happened in a time-transgressive manner from the Gansu Corridor into the Yangzi Basin and then to the lower Yellow River drainage, with the northwest (Dongbei) being last to change. Despite the relative contemporaneity of this shift across regions, the contents of the cultural changes varied greatly. The introduction of herd animals from the steppe region was notable in the northwestern Majiayao culture, where the painted pottery tradition continued from the Yangshao into Banshan. In Central Longshan, the shift was marked by adoption of the blackware and grayware traditions from Songze/Dawenkou, while Liangzhu culture saw blackwares and jades become major status symbols. Although pieces of metal and some smelting slag also appeared from the Gansu Corridor into the Yellow River basin, these did not yet lead to the Bronze Age (see Chapter 8).

Based mainly on the Liangzhu culture, some scholars ask, Was there a Jade Age on the Mainland? The idea of a Jade Age representing an advanced level of development in the Late Neolithic before the advent of ritualized bronze usage is an attractive one,¹ but naysayers point to the long time span of jade's employment: from the earliest millet culture of Xinglongwa to the present day. Moreover, jade items are surprisingly scarce in Longshan sites, with few in burials and hardly any known from houses.² Other scholars reject any technological revolution associated with jade, while some think it too nationalistic or unscientific to adopt a local 'Age' name outside the Western Three Age divisions of Stone, Bronze and Iron.³ But the latter fail to fit the East Asian data anyway, and a new name for the Late Neolithic just might focus in on important social developments.

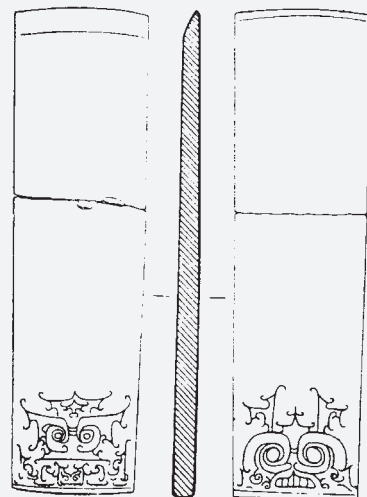
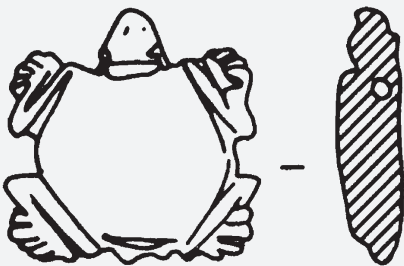
BOX 7.1 Jade technology and meanings

The term 'jade' in English and its equivalent in all East Asian languages is a catch-all for many types of beadstone that look like true jade. The latter comes in two forms, pure jadeite mineral and pure tremolite mineral. Rocks mainly composed of these minerals (but containing others as well) are jadeitite and nephrite, respectively. Over 30 other types of rock act as pseudo-jades, for example, jasper and serpentine.

Jade-working was an outgrowth of polished stone tool technology – true jade being too hard or fibrous (nephrite is an asbestiform mineral) to chip properly. Most early jadestone objects either take natural forms, like the Jomon jadeite pebble pendants (see Figure 6.1), or are slab-shaped from their original cuttings, like the Eastern Longshan yue axes/adzes (right).

Cutting and shaping was done with a variety of tools together with abrasives: rigid and flexible (string) saws, riffler files, and rotary drills and wheels. The linear designs, as on the ax surfaces (lower right), have recently been shown under SEM (scanning electron microscope) to consist of tiny gouge marks. Flints interpreted as carving tools appear at Liangzhu jade-working sites. Because quartz, the mineral of flint/chert, has a Mohs hardness of 7, it can cut nephrite (Chinese jade, Mohs 6–6.5); quartz sand probably served to abrade the surfaces.

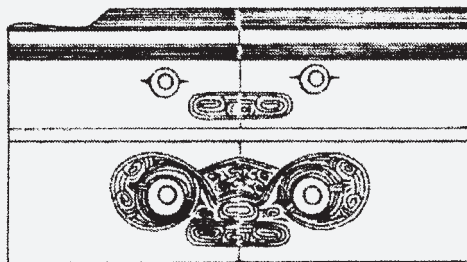
Many Hongshan jades embody incipient bas relief sculpture, like the eyes of the pig dragon in Figure 6.10. The Hongshan frog or turtle talisman (below) shows minimal shaping, with details (here, legs and toes) formed by abraded wedge-shaped indents.



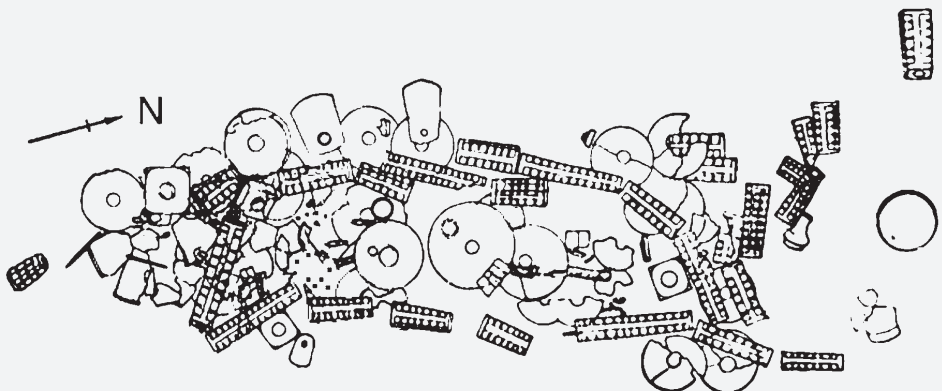
Liangzhu *bi* (below right) and *cong* (right): *Bi* developed from Neolithic stone rings and bracelets. *Cong* consist of a square tube with cylindrical bore. Strangely, the Jinsha site in the Sichuan Basin, dating from Late Shang to Middle Zhou, yielded 27 Liangzhu-type *cong* tubes. Excavators puzzle at the time lapse, but the *Zhou Li* (*Book of Rites*) from the late 1m BC states "Jade is used to make six ritual objects to be offered to Heaven, Earth and the four directions. Green *bi*... is for Heaven, and yellow *cong*...is for earth." Thus, these objects of Neolithic manufacture had long-lived symbolic importance, though we cannot be sure the Neolithic objects had the same meaning as in their historical use in which round shapes like *bi* symbolized heaven and square shapes like *cong* symbolized earth.



One motif carved on a few jades was the 'sacred human and animal' (below), with a benign human face above a more sinister-looking beast. The image is carved around a corner of a *cong* (the seam in the middle being the corner).



Liangzhu tomb M3 at Sidun (bottom) contained the elite jade set of *cong* tubes, *yue* axes and *bi* disks.



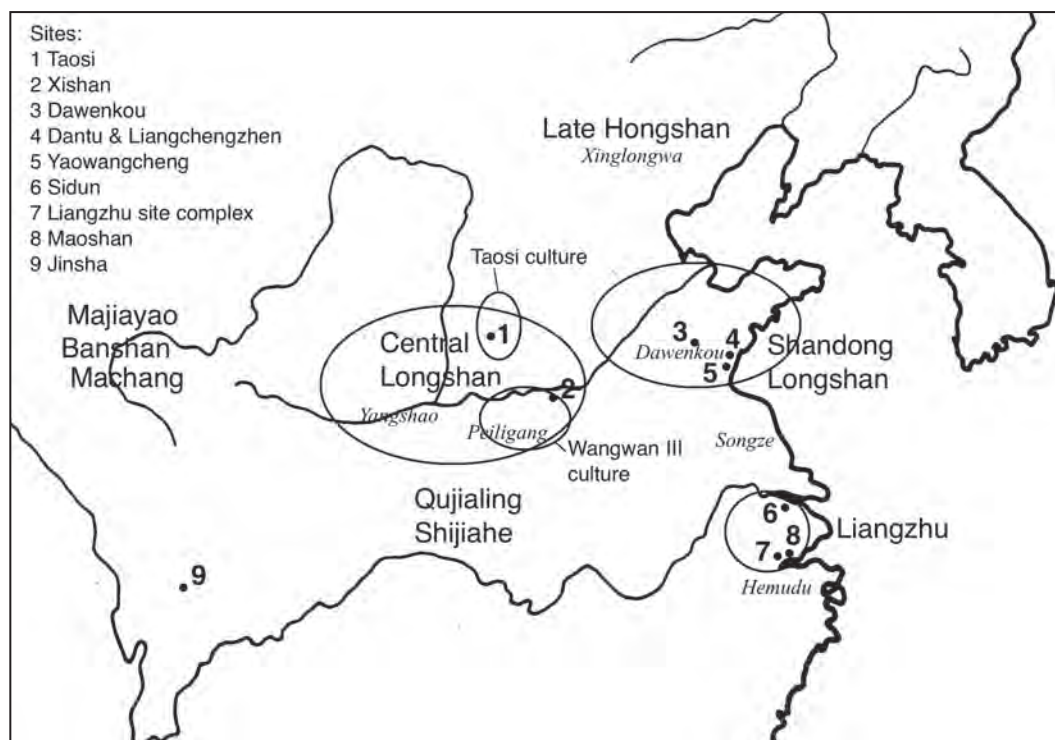


Figure 7.1 Sites and cultures mentioned in Chapter 7

Large ovals indicate the Central and Shandong Longshan cultural areas; small ovals of Taosi and Wangwan III cultures are sub-cultures of the Central Longshan. Other Late Neolithic cultures are in regular font, previous cultures in *italics*. See Figure 7.5 for Central Plain sites.

Of all of the cultures, Liangzhu would be the model for a Jade Age, but as with all socio-economic development, there were tremendous differences across the Mainland, as not all societies followed the same trajectory.

Agriculture, monumental architecture and social stratification

The 3m BC witnessed a proliferation of sites and increasing site sizes, indicating population growth.⁴ Longshan cultures have the most sites relative to their time span.⁵ Cultural florescence was based on agricultural productivity, as Late Neolithic societies became fully agricultural, combining farming with animal husbandry. Millet was still the northern mainstay, but rice was cultivated in the southern parts of Central and Eastern Longshan,⁶ throughout the Middle and Lower Yangzi Basins, and along the eastern and southern coastal areas; during the 3m BC, rice-growing spread eastward to Taiwan, along with millet, and westward to the Upper Yangzi and into the Sichuan Basin.⁷

As is well known, emerging elites are often able to extract agricultural surpluses to support their aggrandizing activities, one being the construction of monumental architecture. On the China Mainland, this often took the form of massive settlement walls, residential

compound walls, and foundation platforms for buildings. Some sites appear to be centers of territorial polities. Regional evidence of violence – including human sacrifice – demonstrates the extension of elite control over life and death of the populace, while walled sites are often interpreted as fortifications. Burials, particularly in the Liangzhu culture, suggest social stratification – that is, a clear division between elite and commoners especially in having spatially separated cemeteries with elaborate facilities for elite burial. Social stratification into two classes, as opposed to continuous ranking of social statuses, is considered to be the threshold for state formation. Many cultures (like Hongshan in Chapter 6), sites, or site hierarchies in the China Mainland are judged to be states based on their burial remains.

What is a state?

Various definitions of the ‘state’ occur in the anthropological literature. Social stratification itself (attested through elite houses and burials) is often equated with state formation, while other theorists delay state recognition until administrative artifacts are apparent. In modern regional site surveys, a four-tiered settlement hierarchy is interpreted as a sign of state organization. In contrast, the standard definition of ‘state’ in traditional Chinese and Korean scholarship is based on a chief or king ensconced within walls (C. *cheng* 城, with the ‘earth’ component 土)ⁱ and called a *guo* (國, including the components 口 enclosure, and 戈 halberd). The different ways of defining states do not always match up (some walled sites are considered city-states, i.e., no territorial hierarchy), and in any case, distinguishing between state and non-state organization is subject to terminological debate and ideological divisions. In general terms, therefore, we can say that the Late Neolithic on the Mainland (3300–2000 BC) is primarily known for polity formation: what might otherwise be called chiefdoms or incipient states.

Fifteen regional cultures are known for the Mainland Late Neolithic (3300–2000 BC),⁸ but only a few of them experienced social stratification or polity formation. And even for those that did, such levels of development were not sustained. The last few centuries of the 3m BC witnessed a general decrease in site numbers and sizes in those regions, with catastrophic destruction both natural and human-wrought at some locales.

Three major aspects of socio-economic advances among Late Neolithic sites (Figure 7.1) will occupy our attention below: complex urbanizing sites, territorial hierarchies recovered through site surveys,

ⁱ C. denotes the Chinese language, as K. for Korean, and J. for Japanese.

and developments in the Central Plain where the first Bronze Age polity arose.

Urbanizing settlements

Urbanization involves the nucleation of population, workshop production of elite goods, construction of public architecture, and the presence of an elite social stratum. The sites under discussion here are sometimes referred to as ‘cities’ in the archaeological literature. An impression gained from that literature is that Late Neolithic sites were all walled, defense being the major concern. Actually, walled sites are uncommon: only 70 have been recognized for the “late prehistoric periods”.⁹ Moreover, walls were constructed in different sizes and shapes for different purposes.

Of walls and terraces

Construction of earthen banks began in the 6–5m BC – probably the counterpart to digging deep village ditches.ⁱⁱ But the practice of mounding earth for specific purposes really seems to have taken off in the Middle Yangzi region in the 4m BC Daxi and Qujialing cultures, and then spread throughout the Mainland in the 3m BC.¹⁰

Wall-building technology differed regionally:¹¹ in the Yangzi Basin, earth or clay was simply mounded up to the desired height, while in Yellow River basin constructions, each layer of earth was tamped down in place. The earliest enclosures tend to be round (like their ditched predecessors) or follow the local topography; gradually the enclosure’s shape was formalized as a square or rectangle, a practice which carried on into the historic period. Estimates of labor input specify 0.1m³ of tamped earth per person per day,¹² so large earthworks of walls required a considerable labor force – ostensibly gathered and controlled by emerging elites.

In marshy regions of the Middle Yangzi, earth from village ditches often served for landfill in low-lying areas.¹³ This practice may have led to the construction of earthen terraces or platforms to support buildings. Almost invariably, those buildings were elite houses, often termed ‘palaces’, and structures with a ritual character, sometimes termed ‘temples’. Let’s look at two recently explicated sites whose various combinations of walls and terraces led to their definition as urbanizing sites.

ⁱⁱ Traces of a rampart at Jiangzhai are discussed in Chapter 6 (Yan, W. 1999: 136).

Southern powerhouse: Liangzhu site complex

The Liangzhu culture, distributed in the Shanghai Delta region, was very long-lived compared to its contemporaries (see Table 1.1). Its early phase grew out of the previous Songze culture *ca.* 3300 BC and partook of the East Coast ceramic tradition. A high proportion of vessels were constructed on the wheel, and many of these were refined blackwares, carefully constructed and burnished to a high luster long before the emergence of eggshell wares in the Yellow River basin (Figure 7.2).¹⁴ However, elite burials are known for their extraordinary jades rather than merely for their elaborate pottery.

The southwestern area of Liangzhu culture was relatively unoccupied when migrants from the northern Songze/Liangzhu region established a base there.¹⁵ During the early Liangzhu phase (3300–3000 BC), this area grew to be the most highly developed, and from the beginning, two status levels of burials indicate social stratification into aristocrats and commoners. Poorly provisioned commoner graves clustered around house groups, but rich elite graves were dug into specially constructed earthen platforms serving as elite cemeteries.¹⁶ The burial platform at Yaoshan was built at this time with different-colored sediments and equipped with steps; part of it has been termed an ‘altar’, conforming to an early assessment of Liangzhu ‘religiosity’.¹⁷ Whether a commoner burial cluster or a platform cemetery, only 20 burials or so were dug in each – possibly indicating the size of the basic social group regardless of status.¹⁸ The early phase Yaoshan burials contained a standard ceramic set of *ding* tripods, *dou* pedestaled bowls, *guan* jar and *pen* basin; male burials invariably contained a stone ax, *yue* jade ax, and jade *cong* tubes (BOX 7.1).

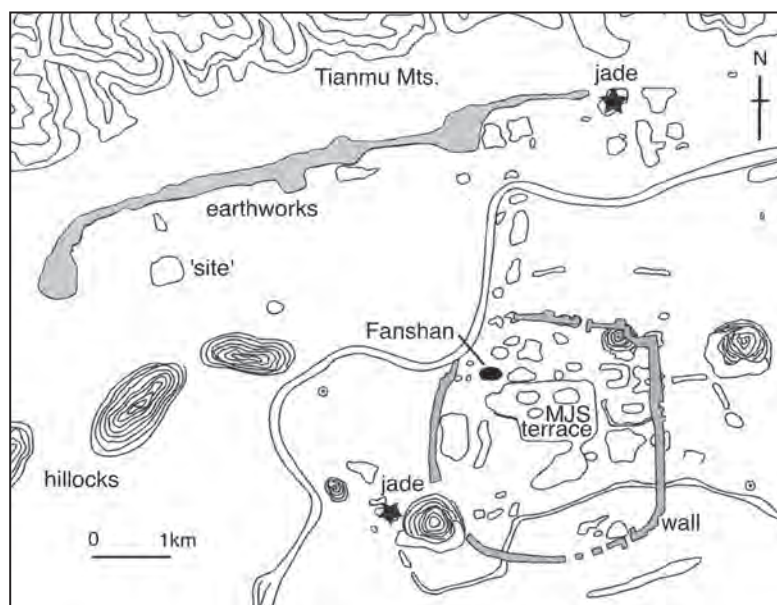


Figure 7.2 Late Neolithic blackwares

A double-eared *hu* vessel from Liangzhu (left) and a lidded jar from the Shandong Longshan (right). Such finely crafted, wheel-thrown ceramics were undoubtedly made by specialists and distributed through elite networks.

Figure 7.3 Liangzhu site complex

The Mojiaoshan (MJS) terrace formed the focus of the Liangzhu site complex which stretched over 50 km² along the foot of the Tianmu Mountains. The hollow surrounds ('sites') are where various activity or occupational debris has been excavated. This drawing represents the final stage of Liangzhu occupation, with the earthworks and walled enclosure having been built in the late phase.



In the middle Liangzhu phase (3000–2600 BC), an urban-like complex formed at the type-site of Liangzhu (named after a modern village), located just northwest of old Hemudu.ⁱⁱⁱ It focused on an artificially built earthen 'terrace' called Mojiaoshan (Figure 7.3), 10m high and 30ha in area.¹⁹ This terrace supported several building foundation platforms up to 3ha in area on which wooden buildings stood. Two jade workshops lay within 2km of the main enclosure and two pottery workshops 8–9km to the east. Some relationship between these two enterprises is suggested by the fact that Liangzhu blackware contained particles of tremolite, a jade mineral.²⁰ Further activities took place at 135 small 'sites' or 'locales' around 1ha in size, scattered around the terrace. The entire site complex covers 50km² and appears to form an urban center of dispersed settlement.

The Yaoshan platform cemetery, 3.5km northeast of the Mojiaoshan terrace, continued in use in the middle phase, but another platform cemetery called Fanshan appeared just 150m northwest of the terrace, 5m high and covering 2700m²; its eleven elite tombs yielded 1100 jades. In this phase, jades as well as ceramics became standardized in sets consisting of *bi* perforated disks, *cong* tubes and *yue* axes. In central Liangzhu, elite burials containing these sets are assumed to have marked the highest rank, with middle-ranking burials having the occasional *bi* disk and low-ranking burials yielding jade ornaments but no items belonging to the jade sets (Appendix I.2).

ⁱⁱⁱ The new site museums at both Hemudu and Liangzhu can be visited in a single day.

The proliferation of burials with important jades attests to increasing population in the elite class during this period.

Few of the jades from the Fanshan burials were finished articles: most were in various stages of manufacture. The presence of unfinished jades in these elite burials has stimulated one researcher to consider that the interred might themselves have been jade workers;²¹ but in line with more usual anthropological interpretations, they were more likely elites who oversaw the jade manufacturing process. It is apparent that jades manufactured at Liangzhu were distributed to other Liangzhu culture areas. However, the highest-ranking burials outside this central area did not have a full jade set – indicating limitations on access – and low-ranking outlying burials had no jade at all.

In the late Liangzhu phase (2600–2400 BC), a mounded-clay wall on stone foundations was built to enclose the terrace and four burial platforms (including Fanshan) in each of its corners, totaling 290ha. A long set of earthworks was also built between the enclosure and the mountains, possibly to control mountain outwash and prevent river flooding. These monumental structures attest to the vitality of late Liangzhu culture, though increasing variability in grave goods except for the stable highest rank suggests decreasing control over the ideology embodied in the jades.²² Some of the most spectacular burials, as at Sidun (see BOX 7.1), date to what is called ‘epi-Liangzhu’ (2400–2200 BC),²³ just prior to the demise of the Liangzhu culture altogether.

Intermontane Taosi

The site of Taosi makes an interesting comparison with Liangzhu.²⁴ Nominally part of Central Longshan, it was decidedly unlike other Longshan culture sites. Taosi was tucked away in the Linfen Basin of the Fen River valley, along with 52 other sites belonging to a Taosi ‘culture’. Like Liangzhu, the Taosi site was newly founded and housed both elites and commoners from the beginning. In the early phase (2300–2100 BC), a 56ha walled enclosure held unusual housing facilities and a palace-temple area covering 5ha. Outside the wall lay a separate ritual area to the northwest, storage cellars to the southeast, and the ‘royal cemetery’ farther south. A thousand of the 10,000 graves have been excavated, yielding six large high elite graves and 40 medium-sized elite graves (see Table 6.2). Judging by the alligator-skin drumheads and other paraphernalia in the elite graves, the elite groupings probably exerted ritual authority as discussed in Chapter 6.

In the middle phase (2100–2000 BC), a new wall was built partly

over the old to encompass 280ha. A 10ha enclosure attached to the new southeastern wall contained a new royal cemetery and an observatory. The larger site was divided into quadrants, indicating city planning possibly with axial roads: the elite quarter lay in the northeast, the ritual quarter in the southeast, household workshops for stone tools and pottery in the southwest, and commoner residences in the northwest. A large royal burial contained a boat-shaped coffin $2.7 \times 1.2\text{m}$; though most of it had been destroyed by later activities, the grave goods revealed finely painted ceremonial pottery probably made on site, several imported jades, objects with turquoise inlay, painted lacquer vessels, and 10 pigs cut in half. A chipped chime stone with a perforation for hanging, recovered from an elite grave, presaged the stone chime sets of Shang and Zhou.

Three aspects mark the most notable differences between early and middle phase site organization: formalization of craft workshops, the shift from ritual talismans to astronomical concerns, and increased contact with outside polities. The site's prominence seems to have derived from control of stone tool manufacturing,²⁵ plus a monopoly on a mountain quarry 6km to the south.²⁶ Roughly flaked tool blanks of spades, axes, wedges and chisels have been recovered from the quarry, while some minor flaking and grinding took place at the site in household contexts. Many of the on-site tools were for woodworking, possibly employed in making the various tables, cabinets, vessels and kitchen accoutrements excavated there. Since less than 4% of tools at Taosi were polished,²⁷ and since tools of Taosi stone derivation occur at contemporaneous Linfen Basin sites, the blanks were probably shipped to consumers in the region to undergo polishing at their destination.

There is no evidence of processing jade at Taosi, so the elaborate jades found in middle phase burials must have been imported. The presence of *bi*, *cong* and *yue* – the jade set of the highest Liangzhu elites – suggests inter-regional elite communication with the south, while jades bearing 'monster masks' (as seen on the adze in BOX 7.1) may indicate connections with the East Coast (following alligator skin imports).

At 2000 BC, the site of Taosi was completely destroyed: walls and palaces razed, cemeteries desecrated, and the population violently disposed of.²⁸ This marked the end of socio-political development at the site, though not its complete abandonment. In the late phase at Taosi (2000–1900 BC), stone-workers continued on site and commoner burials were added to the elite cemeteries. Analyses of human burial remains reveal that not all of Taosi's occupants were locals, some resembling more northern populations.²⁹ In the future, it will be crucial to distinguish between middle and late phase

populations to see if any one physical group was responsible for the site's destruction. At the moment, competition with another large site located south of the mountain quarry is highlighted as a possible cause.³⁰

Liangchengzhen, Eastern Longshan

Liangchengzhen (LCZ; Figure 7.4), on the southeastern coast of the Shandong peninsula, sits on high ground overlooking small stream courses emptying into the Yellow Sea. Most of the site information comes from surface survey, though ditches are known through excavation, and one area had been landfilled for housing to prevent water-logging.³¹ One house had a foundation of adobe bricks – a form not well established elsewhere. LCZ site was newly founded around 2600 BC, despite an existing walled site of 130ha, Dantu, standing 2km to the northwest. LCZ grew to over 246ha and was functionally diverse, though it is not yet clear if any of the site was enclosed.³²

Blackwares (see Figure 7.2) and jades in the site area have been found by local residents through many decades. The decorated *yue* adze in BOX 7.1, 18cm long, came from the 1936 excavation of LCZ and remains one of the finest jade products of the Late Neolithic. Both LCZ and Dantu have yielded finished and unfinished jades and utilitarian stone tools,³³ and recent excavations provide more detailed information on the production and use of common tools: axes, adzes and chisels (all noted to be woodworking implements), shovels, sickles and knives (agricultural tools), and projectile points (arrowheads).³⁴ Grindstones for shaping, polishing and adding edges to stone tools were numerous, as well as drilling tools (including a jade drill bit).³⁵ Good outcrops of sandstone lay 30–35km northwest of LCZ,³⁶ requiring procurement systematics. Outlying sites in this northwestern area contained hammerstones, flaking debris, pecked and chipped tool blanks and chunks of raw materials – greenstone and quartzite sourced from the nearby mountains. However, LCZ has no nearby sources of jade or turquoise – another ornamental stone found at the site – so at least the raw material if not the finished product had to be imported.

Although millet is usually surmised to be the crop of choice in the northern Mainland, flotation of sediments from various features at LCZ revealed rice as “the most common cultigen by density, number, and weight”.³⁷ Food residues on pottery also indicated rice-based alcohol drinks – important for commensality evidenced by the number of beakers and pitchers in Longshan assemblages – and especially the eggshell blackware cups in burials. Next came foxtail



Figure 7.4 Excavations at the eastern Longshan site of Liangchengzhen

A round house is outlined with adobe bricks, while a Han tomb sits on the horizon. Tools from the LCZ region include grindstones (left, ca. 15cm) for tool-making, a jade ax (middle, ca. 8cm) and a coarse agricultural tool (right, ca. 8cm).



millet, with a minor debut of wheat; soybeans and adzuki beans, not yet proven as domesticated, were also harvested. The small number of species indicates intensification of grain and pulse crops to the exclusion of wild plants. Interestingly, the wild plant seeds recovered from LCZ are surmised to have come from animal dung, which was used as a fuel instead of wood. Two things can be deduced from this: that trees had probably been extensively cleared to sow dryfield crops (accounting for the large numbers of woodworking tools), and that herd animals were probably important adjuncts to the rice-based diet. Elsewhere on the Shandong Peninsula, however, wild animal hunting and shellfish collecting still continued with vigor.³⁸

Quick comparisons

The three sites discussed above were founded at locations without previous occupation, by people who expressed aspects of social stratification immediately after founding. This may be a clue to their successful co-option of economic production, reinforced with ritualized status maintenance. While market conditions had yet to emerge, these sites provisioned their surrounding settlements with highly coveted goods, prestige goods in the case of jade but utilitarian stone tools as well. They differ in that Taosi was established as a walled site, while the wall at Liangzhu was only added later, and a wall has yet to be found at Liangchengzhen. Taosi was fairly self-contained, but both Liangzhu and Liangchengzhen entail more dispersed settlement over a broad area. These sites are only partially known from excavation, and work continues to enlighten on intra-settlement function and inter-settlement relations.

Site hierarchies

The sites discussed above comprised the premier settlements in their cultural regions.

This is clear at Liangzhu from the size and elaborate nature of the site complex. Beyond that, it is difficult to elucidate the Liangzhu settlement pattern, as most of the excavations have been of burial sites; small villages 1–6ha in size have been found on areas of raised ground, but the residences of the elites are as yet unknown.³⁹

Taosi sat in a territory covering some 3300km² along the eastern side of the Fen River; site surveys there in 2009–2010 identified 54 (52 mapped) Taosi ‘culture’ sites divided into four size classes and three regional clusters. Taosi is the premier site in the central cluster but is also thought to be the head of a four-tiered territorial hierarchy.⁴⁰ However, reckoning of the size-class distribution does not yield typical pyramidal structures in any of the clusters or as a whole (Table 7.1). Moreover, the four large sites in the survey area may signal the presence of more than one ‘polity’ in the Basin. Taosi is clearly separated from the southern cluster by a mountain range and is more likely to have been affiliated with the northern cluster, if not independent.

cluster/ site rank	northern	central	southern	totals
large	1	1 (Taosi)	2	4
medium	13	2	9	24
small (+tiny)	8 (+4) = 12	2 (+1) = 3	3 (+6) = 9	13 (+11) = 24
total	26	6	20	52

Table 7.1 Territorial hierarchies in the Taosi site clusters

Figure 7.5 The Huanghe Corridor region in the latest Neolithic

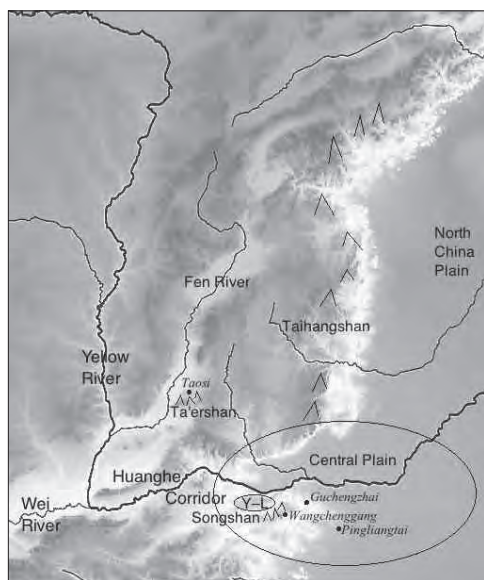
Two main tributaries of the Yellow River are the Fen and the Wei. The Fen River valley was a major conduit of communication from the Wei River valley into the northern frontier, probably accounting for the previous spread of painted pottery into the Hongshan culture. The Fen River valley again became important in the Shang and Zhou periods. Taosi is shown just north of the Tai'er Mountains in the Linfen Basin. Y-L refers to the Yi and Luo River basins where Erlitou subsequently developed. They are part of the Wangwan III cultural distribution, whose main sites are shown here east of the Song Mountains. The Taihang Mountains form the border between the loesslands to the west and the North China Plain to the east. The Central Plain (large oval) was home to the beginning of the Bronze Age.

The site survey of the southeastern Shandong coast carried out over 11 years revealed two large sites, Liangchengzhen and Yaowangcheng, among a total of 463 Longshan culture sites.⁴¹ Each of the large sites had their own four-tiered site hierarchy consisting of three administrative levels plus small villages, though that of Liangchengzhen was more dense and elaborate. Both areas are considered candidates for early state development, but Yaowangcheng, though the larger site, rose and fell earlier than Liangchengzhen. The latter experienced drastic shrinkage and depopulation of its hinterland after 1900 BC. Only nine localities of the latest Late Neolithic ceramics have been found around LCZ, and just two in the Yaowangcheng region.⁴²

Central Plain polity development

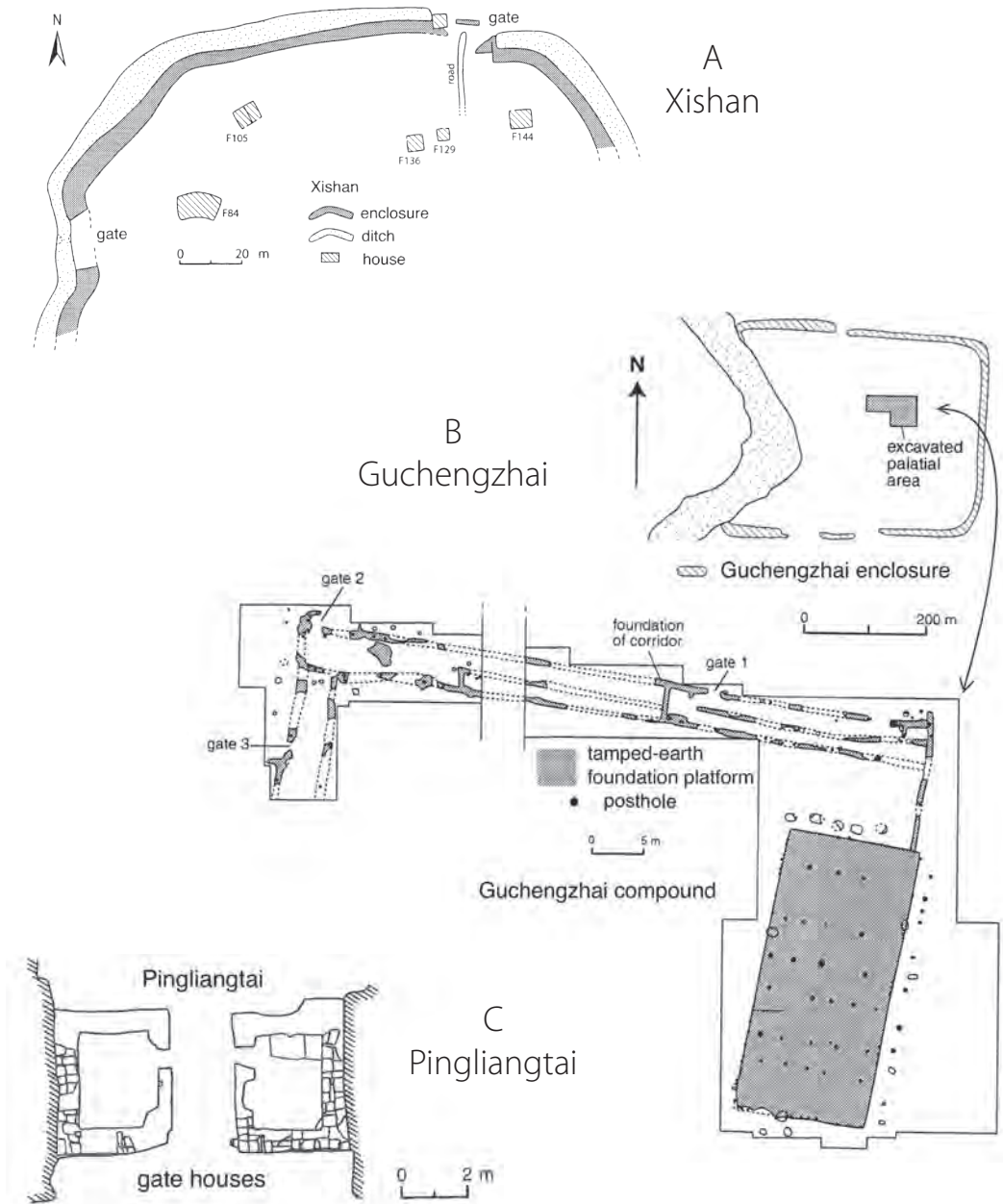
At the eastern end of the Huanghe Corridor lies the region referred to as the Central Plain (Zhongyuan) (Figure 7.5). This area fostered the first historic dynasty, the Shang, and it may also have been the home of the legendary Xia Dynasty. For sure, it was the locus of the Erlitou culture which preceded Shang archaeologically. Since Erlitou is the first Bronze Age culture (Chapter 8), it is worthwhile examining the latest Neolithic landscape in this area that preceded it.

The Central Plain was home to several final Neolithic sub-cultures, the most important for our purposes being Wangwan III (2600–1900 BC).⁴³ This sub-culture is spread over the old Peiligang culture area, mainly south of the Yellow River. It supported seven walled ‘cities’ and another 29 major sites.



Walled settlements

Going back in time a bit, urbanizing trends began at Xishan, a Late Yangshao site encircled by both ditch and wall; excavations have identified two gates (Figure 7.6-A). The site yielded evidence of interaction with both Dawenkou in the east and Qujialing in the south (see Figure 6.4).⁴⁴ This might have taken the form of trade or contact between elites, their presence at Xishan manifests in an interior cluster of large houses containing prestige goods and fine painted pottery.⁴⁵ Competition might also have resulted in violence at Xishan, as ash pits contain skeletons “in postures of struggle”.⁴⁶ Occupied on the eve of the Late Neolithic, this site set the agenda for development in the region.



In contrast to Liangzhu and Taosi settlement heydays, Late Neolithic settlements in the Central Plain exhibit more evidence of defense and violence: headless and footless corpses stuffed down wells and a sudden proliferation of projectile points – a fourfold increase over Yangshao.⁴⁷ At Pingliangtai, walls included guardhouses made of bricks flanking the southern gate (Figure 7.6-C), supporting the

Figure 7.6 Aspects of Late Neolithic site development

- A Xishan
- B Guchengzhai
- C Pingliangtai

interpretation of a fortification. The site was only the size of a small village at 3.4ha, yet some of the buildings inside the walls were already distinguished from others by being raised on tamped-earth platforms.

The walled site of Guchengzhai encompasses 17ha, had two access gates, and was surrounded by a moat filled with water diverted from the nearby river. The site interior shows further elaboration in a 'palatial area' (Figure 7.6-B). One large building foundation (13.5 × 28.4m) is connected to an integral corridor enclosure; the corridor represents the cordoning off of elite space from other occupants within the walled site. As with burials, the spatial isolation and separation of elite and commoners in terms of residence is a noted feature of social stratification.

Sacrificial interments

In Chapter 6 we saw how burial sacrifices were important status indicators, with dogs and pigs the main species interred. Pigs were most likely related to funerary feasting, a practice which is sporadically recorded in Late Neolithic burials. Dog sacrifices continued, with the Guchengzhai corridor foundation so blessed.⁴⁸ But the real change was that sacrifice seems to have shifted from animals to humans, and to have expanded out of the cemetery into town: many Central Plain wall and house foundations incorporate human interments, a signal of increasing social control.

At Wangchenggang, two walls define an inner urban area of 0.8ha, and an outer wall encloses up to 300ha, possibly built by successive site rulers. Some archaeologists believe the small enclosure to have been the capital of the Xia Dynasty founder,⁴⁹ though matching texts with material remains is difficult. Nevertheless, a pot painted with a red character resembling that of 'king' (C. *wang* 王) and the site name itself 'hill of the kingly enclosure' create optimism that the capital of a small kingdom or chiefdom can be identified there. In the enclosed urban area beneath the earthen platform were found 13 pits filled with 25 skeletons of both adults and children; site excavators interpret the pits as connected to rituals accompanying platform construction,⁵⁰ emphasizing their elite nature. A fragment of a bronze vessel was also recovered there in addition to pottery and stone tools.

Settlement system

Numerous Wangwan III culture sites have been documented in the Central Plain, extending across the Yellow River to the north, and

across the Song Mountains into the Yi and Luo river valleys where Erlitou arose. Four size classes are recognized, with walled sites occurring in all categories: large sites 40–100ha, medium 15–40ha, small 5–15ha, and those less than 5ha; however, new data may show that Wangchenggang was the largest of all at 300ha.⁵¹ The other nine large sites are spaced rather equidistantly across the rolling landscape; the positioning of sites away from rivers might have been facilitated by the invention of the well, several of which have been excavated.⁵²

The site distribution has been divided into small units of two- or three-tiered hierarchies by one researcher.⁵³ Another researcher concludes that “it appears that people from these seven cities cooperated with each other when they established their cities, deliberately choosing the locations and regional distribution of settlements for mutual defense.”⁵⁴ The question becomes, defense against whom, if not each other? The other question that arises is that, given the new status of Wangchenggang as by far the largest site, could this be the center of a four-tiered administrative hierarchy? The site is nestled against the Song Mountains at the headwaters of several rivers draining to the southeast. It would have been a defensible site both strategically and against flood waters. So it may

Table 7.2 Central Plain enclosed sites, compounds and building platforms, compared with Erlitou

site name	date BC	site wall length (m)	shape	site area (ha)	building platforms	walls (m)		
						height	width at base	width at top
Xishan	3300–2800	300m circum.	round w/ ditch	25		3+	11	5–6
Taosi	2600–2000		irreg		in elite areas			
early				56			4.5	
middle				280			8–9	
Pingliangtai	2550	185x185	square	3.4	within enclosure	13	8–10	
Guchengzhai	2300	ca.350x420	rectang	15	for building & corridor	15	40	
Wangchenggang west compound	2455–2280	82.4x92	almost square	0.75	within compounds	4.7		
site wall	2100–2050	+		30				
Liangchengzhen		none?		246	in center			
Liangzhu		1.5x1.6km	square	290	terraced areas			
long wall		5km					20–50	
Erlitou		none		300				
palace ‘a’		100x108m	square	1	within compounds			
palace ‘b’		58x73m	rectang	0.4				

be that an incipient state developed here in the latest Neolithic, but then was soon eclipsed by Erlitou, which was founded in the Yi-Luo river basins behind the Song Mountains to the northwest (see Figure 7.5; Table 7.2). As with so much other Late Neolithic florescence, the Wangwan III culture faded before the beginning of the Bronze Age.

In summary, the socio-political development of the Central Plain in the Late Neolithic resembles neither Liangzhu in the south nor Taosi in the west. No elite burials have emerged so far, and collections of material culture excavated at the known sites are fairly utilitarian. The lack of prestige goods is notable, together with clear existence of aggression on a rather widespread level, including the incorporation of human sacrifices into elite structures. It appears that secular control over life and death, rather than highly ritualized hierarchical structures, governed relations among the many similar chiefly units scattered across the landscape.

The dramatic end of the Late Neolithic

The Longshan and Liangzhu socio-political landscapes of the north and south Mainland were highly variable even while representing the most advanced Neolithic. There was no standard way in which polities or urbanizing sites developed: each consisted of a different constellation of site sizes and areas, walled or unwalled central places, and earthworks used for city walls, compound walls, building platforms and artificial terraces. Beyond agriculture, most central places had craft production as their economic mainstay. Except for Liangzhu and restriction of the jade set to the highest ranking burials, there is little evidence that production was under elite control; raw materials were obtained nearby and products were mainly distributed in the local area. Some long-distance importation of goods indicates regional connections, but no clear trading networks have been defined. Burials indicate stratified societies at some sites, and most high-ranking persons were associated with important ritual goods. Settlement surveys have identified at least two, if not three, four-tiered site hierarchies, suggesting incipient state formation according to that definition. It was not to last, however, as much Late Neolithic social development was brought to an end that *might* relate to a catastrophic change in climate.

Studies around the world have documented a dramatic 'abrupt climate event' (referred to as the 4.2kya or 4kya event) causing devastating floods and droughts in different areas.⁵⁵ Geologically, this event divides the Middle from the Late Holocene period. Major civilizations collapsed from drought at this time: the Old Kingdom

in Egypt, the Akkadian Empire in Mesopotamia, and the Harappan civilization along the Indus. East Asia did not escape. Stalagmites in the limestone caves of southern China and northeastern India document a particularly severe weakening in the Asian Monsoon between 2500 and 2000 BC, leading to drier and cooler weather⁵⁶ and disrupting agricultural practices. Between 2200 and 2000 BC, excessive flooding – the flip side of aridity – documented in the Wei and Yellow river drainages terminated the Longshan culture,⁵⁷ while flooding also destroyed the Liangzhu and Shijiahe cultures along the Yangzi.⁵⁸ The loss of ideological control from the Late Liangzhu phase was followed by the disappearance of the culture at 2200 BC. The eastern Shandong survey region was shown to have drastic population reduction after 1900 BC, and a similar pattern occurred in the Central Plain.

Deterministic models of climate causing cultural change are anathema to most archaeologists, but the correlations of cultural collapse with this particular abrupt climate event are very persuasive (Figure 7.7). One researcher's alternative proposals for how collapse



Figure 7.7 Maoshan site

The late Liangzhu valley-bottom paddy fields (in black stratum) are excavated from beneath the yellow flood sands of the 4.2kya event.

might have occurred in Liangzhu suggest two possible factors: that jade resources might have run short, and/or that “the elite failed to bring prosperity to the communities by communicating with the supernatural beings.”⁵⁹ Among the successors to Liangzhu, there was no effort to continue mass jade production, whether due to a lack of jade resources or destroyed beliefs in the power of the elites. As at Taosi, life went on without the elite.

In the Japanese Islands, too, we see a change in settlement patterns at this time, as the central mountains supporting the Middle Jomon exchange system were depopulated and the Sannai Maruyama site in northern Honshu was abandoned. Decreases in site and house sizes in the Late Jomon correspond with a subsistence shift marked by a decrease in the use of grindstones for processing plant foods and an increase in arrowheads used for renewed hunting activities.⁶⁰ The decline of Middle Jomon sites in the central Honshu Mountains has long been attributed to climate change, particularly an increase in precipitation. This pattern, common throughout central and northern Honshu, dovetails with the eastern Mainland experience of site abandonment.

If these correlations between climate and cultural change seem unlikely, it is good to keep in mind that an earlier period of extreme cold in western Eurasia, in the radiocarbon date range of 3960–3821 BC, is believed to have caused the fall of ‘Old Europe’, with tell settlements burned and abandoned, destruction of forest, and the discarding of female figurine rituals and copper metallurgy.⁶¹ These results underline the possibilities of such devastating consequences between 2200 and 2000 BC, when “social explanations can not account for the synchronicity of collapse of several Neolithic cultures at a large regional scale.”⁶² The way the Mainlanders survived this later extreme climate event and made use of resources from the steppes is the story of the East Asian Bronze Age.

The opening of the steppes

Developments on the Eurasian steppe began to intrude into Late Neolithic societies, but their full impacts were not felt until after 2000 BC. Before bringing the Late Neolithic to a close, therefore, let us step out of East Asia for a moment to look at phenomena on the Eurasian steppes that had resounding influence on the development of East Asian civilization. Steppe societies were important as sources not only of several domestic animals but also of copper- and bronze-working and iron metallurgy. The metal introductions took place over three millennia and are dealt with in later chapters, but here animals take precedence (see Appendix G.2).

The western and central steppes

The Eurasian steppes occur as a relatively thin band sandwiched between the deserts of Inner Asia to the south and the forests of Russia to the north, stretching from the Black Sea in the west to the Altai Mountains and across the Mongolian plateau in the east (Figure 7.8). These vast grasslands were exploited by hunter-gatherers until the domestication, in West Asia, of cattle and sheep between the 6m and 4m BC and the invention of wheeled transport south of the Caucasus Mountains in the mid-4m BC.⁶³ Horses were probably domesticated in the Pontic-Caspian (western) steppe region,⁶⁴ first for their meat and later for their labor. One hypothesis postulates domestic horsemeat as a good winter food; the date for this ‘horse-keeping’ is put at 4800 BC, when horse legs and heads were deposited along with domestic animal parts in funerary sacrifices, and images of horses were carved on bone implements.⁶⁵ Clear horse domestication is now known from 3500 BC in the central steppe, indicated by bridling and milking.⁶⁶ Horse-riding itself is thought to have developed concomitantly in order to herd domestic animals and hunt wild horses, but evidence for early riding is difficult to come by and hotly debated.^{iv}

From west to east

Despite the aversion of archaeologists to postulating long-range migrations, cultural resemblances between eastern and western steppes can only currently be explained by just such a process. One popular hypothesis envisions a breakaway group from the Yamnaya Horizon of the western steppe trekking across the steppes to the east and establishing themselves at the western fringes of the Altai Mountains.⁶⁷ These peoples were copper-using herder-hunters who traveled by wagon; faunal remains at their western sites consist mainly of horses (55%).⁶⁸ They established the Afanasievo culture (2900–2500 BC) in the Altai Mountains and Minusinsk Basin, where they became mainly sheep/goat herders (67%) with fewer horses (8%) than cattle (13%).⁶⁹ With more information forthcoming for the areas between Yamnaya and Afanasievo, we will be able to understand the nature of these cultural relationships. Meanwhile, DNA analyses reveal that wild oxen (*Bos primigenius*, aurochs) and wild mares (*Equus ferus*) of the steppes were integrated into herds en route.⁷⁰

^{iv} See Anthony & Brown 2011 for summary of problems. Note that the ‘secondary products revolution’ proposed by Sherratt (1981) and used in CKJ, though stimulating at the time, is no longer conceived of as a ‘revolution’; instead, secondary products – still of immense importance – were added incrementally over time.

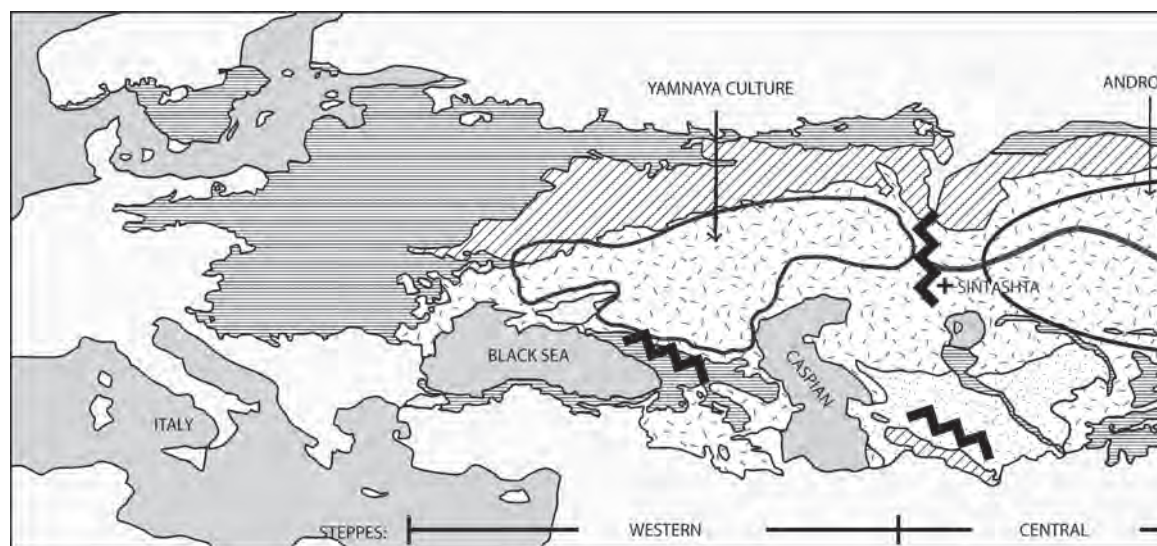
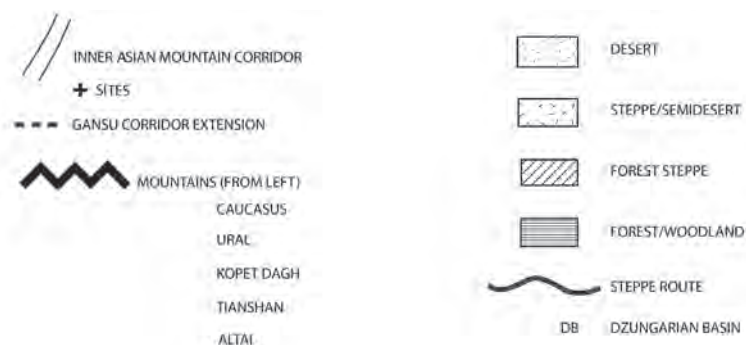


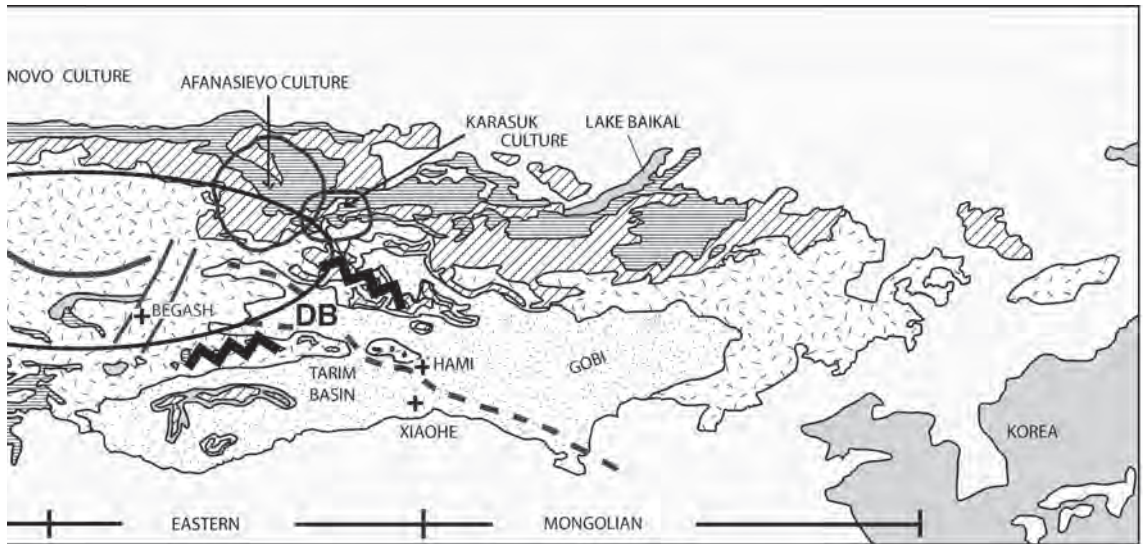
Figure 7.8 Across the Eurasian steppes

The route east from Sintashta (schematized curvy line) and the route west from the Gansu Corridor (dashed line) meet with the Inner Asian Mountain Corridor running north and south (double line). The area west of the Dzungarian Basin (DB) thus is a crossroads of communication between steppe, desert, and forest peoples and with the Central/West Asian urbanizing towns.



DNA studies on the people of southern Siberia in the Bronze Age – including Afanasievo's successor cultures in the same region: Andronovo (1800–1500 BC), Karasuk (1400–800 BC) and Tagar (800–100 BC) – reveal that those populations were related to Europeans and the Bronze Age inhabitants of the Tarim Basin.⁷¹ They were Caucasians with fair hair and blue eyes, perhaps speaking the Indo-European Tocharian language.⁷² The mummies of the Tarim Basin, whose identification caused such a stir in the mid-1990s, belonged to this population.⁷³ The presence of nomadic pastoralists has now been documented for the southern Tarim Basin from *ca.* 1000 BC, though their ethnic affiliation is unknown.⁷⁴

Subsequent to the Yamnaya dispersal, the Andronovo horizon spread from the Urals to the Altai, in several local cultural variants. The earliest phase was bedded in the Sintashta culture on the eastern flank of the Urals: here suddenly at 2100 BC, highly fortified walled



sites were occupied by household bronze-producers, while warfare was waged in horse-drawn chariots. Lost-wax bronze casting, developed south of the Kopet Dagh Mountains, was taken up by Andronovo peoples, with the Seima-Turbino bronze complex eventually impinging on the northwestern China Mainland.

It is one thing to talk about vague ‘influences from the steppes’ and another to actually trace the routes by which people interacted and traded objects and ideas. Passage eastward across the steppes probably led into the Dzungarian Basin, cutting across the eastern end of the Tarim Basin into the Gansu Corridor (see Figure 7.8). Travel went in both directions: western herd animals, grain crops and metallurgy were transmitted from the area recently named the Inner Asian Mountain Corridor (IAMC),⁷⁵ while millet was transmitted westward.

By 2200 BC, pastoralists in the eastern steppes are known to have possessed both millets and wheat; excavations at the site of Begash in modern Kazakhstan show that Early Bronze Age pastoralists maintained seasonal habitations and deposited grains as ritual items in burials.⁷⁶ They did not cultivate the grains themselves nor even consume these ritual grains; but through trade, they brought wheat to East Asia’s doorstep. Like their northern counterparts in the Altai, they hunted and herded sheep/goats (65%) and cattle (25%), with only 5% horses present. By 2000 BC, admixed peoples of eastern and western derivation are known at the Hami and Xiaohe cemeteries in the northeastern Tarim Basin.⁷⁷

Establishment of the Early Metal Province

Once the initial trek across the steppes was made, people traveled back and forth, no doubt bringing copper and bronze metallurgy to the east, incorporating the northern part of Mainland China into the Early Metal Province (EMP) of the eastern steppes.⁷⁸ There is much debate concerning the types of metal artifacts (copper, arsenic-bronze, tin-bronze, leaded bronze), their stylistic origins, and their loci of production in this region. It is clear that the northern Mainland was stimulated from various directions and by different metal-using cultures and that each Mainland area combined imported objects with locally produced ones, using whatever ore sources were available.⁷⁹ It is to the advent of the Bronze Age in Mainland China that we now turn.

Further reading

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- Linduff, Katheryn M. (ed.) (2003) *Metallurgy in ancient eastern Eurasia from the Urals to the Yellow River*. Lampeter: Edwin Mellen Press.
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Chapter 8

Bronze Age Beginnings

(2000–850 BC)

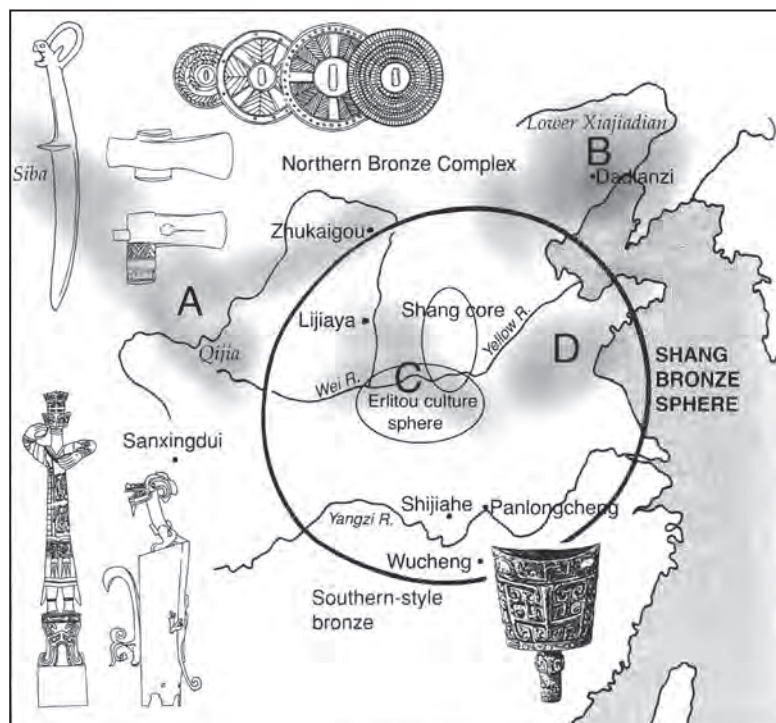
The ‘abrupt climate event’ between 2200 and 2000 BC came on top of the end of the so-called Climatic Optimum period of warm temperatures. Some researchers postulate major social dislocations at this time, with Liangzhu peoples migrating both to the south and to the northwest, the latter suggested by the appearance of southern artifacts and styles in the Bronze Age Erlitou culture. Increasing aridity across the northern Mainland stimulated a greater reliance on herd animals, and the use of a variety of metals – copper, bronze, and gold – in the northern and western cultures distilled into a preference for bronze at Erlitou. Nevertheless, Erlitou was not the only great Bronze Age culture on the Mainland, nor was it the model for all others. Sanxingdui arose in the Sichuan Basin at approximately the same time. Erlitou, however, fed into the Shang bronze culture and complex state organization that laid the ground for the historic Chinese dynasties.

Bronze Age time span

Despite the fact that Western periodizations do not apply well to East Asian data, the Mainland is recognized to have a vigorous Bronze Age with diverse and spectacular bronzes produced by several cultures over a wide geographic area. There is controversy over when the Bronze Age actually began, because small bronze objects occur in Neolithic sites before Erlitou. From the late 4m BC (brass at Jiangzhai) to 1500 BC, more than 70 sites across the northern Mainland have yielded small quantities of metal artifacts.¹ In the early 2m BC, copper and bronze artifacts are often accompanied by other objects of gold and silver. Among those sites yielding metals, evidence for production is limited but present (see Appendix J). Small artifacts were locally produced by cold-hammering, hot-forging or casting in single-valve or bivalve stone molds. Four early metal-using areas have been recognized across the northern Mainland; each had distinctive artifact types,

Figure 8.1 Early Bronze Age cultures on the China Mainland

(• dots mark sites, cultures are italicized, rivers are italicized sans serif) The Shang bronze tradition began in the Central Plain (C) and expanded in all directions to include the Wei River valley and early Shandong bronze culture (D). Regional bronze cultures (A, B) occupied the Northern Zone, where bronzes of the Northern Bronze Complex included short daggers, curved knives, tube-socketed battle axes and mirrors (upper left). Bronzes in the independent Sanxingdui culture of the southwest include a very unusual emphasis on the human form (lower left), rarely seen in the Shang bronze sphere. Yangzi Basin bronze traditions placed great emphasis on musical instruments, especially bells and sounding stones, though the *nao* bell shown here (lower right) was excavated from the Shang core.



technologies and local ore sources – none pointing to a single origin (Figure 8.1, A-D).ⁱ

The main Bronze Age cultures of the China Mainland thus arose in a ‘technoscape’ⁱⁱ of early metal usage that extended across the steppes into Siberia, south across the Mongolian Plateau, and throughout the northern Mainland. The most likely reason that Erlitou became the premier bronze culture in the north and Sanxingdui the premier bronze culture in the southwest was because bronze was transformed from utilitarian and ornamental uses into ritual goods. The invention of the piece-mold, workshop production and casting of bronze ritual vessels at Erlitou revolutionized the socio-economic and political landscape of the Central Plain, initiating the Shang bronze tradition. All sorts of objects were cast of bronze in the Early Shang – weapons, hairpins, agricultural tools – but bronze was most highly prized for making ritual vessels. Historically considered the ‘beautiful metal’, bronze continued as ritual items and weaponry

ⁱ See An, Z. 2000a, 2000b, and Tables I and II in Linduff *et al.* 2000 for early descriptions and evaluations of many of these finds; the northern cultures are discussed in detail in Pak, Y. 1995; Linduff *et al.* 1997; Shelach 2009. For sites listed by region, time period and material type, see the frontispiece map of early sites in China yielding metal and Maps 1–4 in Linduff 2000.

ⁱⁱ Arjun Appadurai’s term used in Linduff 2008.

in the Zhou Dynasty, even after the beginning of iron production in Middle Zhou (iron being the ‘ugly metal’). By the end of Zhou and in the Han Dynasty, commodities made of bronze constituted important elite accoutrements – rather than ritual items.

Connections of the regional bronze cultures with the Shang tradition were often tenuous; Sanxingdui in the southwest is considered a completely indigenous development. However, others, such as Wucheng south of the Yangzi, are considered ‘hybrid’ cultures arising from local cultures that interacted closely with the Shang. The relationships of northern bronze cultures with central Shang are becoming clearer, and by the Middle Zhou period, several bronze cultures are traditionally (if perhaps not accurately) identified with Northern Zone ethnic groups known from the historic record (Chapter 10).²

Bronze-working spread outward to the Pen/Insular regions during the 1m BC, first into the Korean Peninsula and later into the Japanese Islands. Bronze-using cultures in these regions had several different connections to the Mainland, absorbing objects and often re-casting them (literally) into new indigenous forms. Moreover, because of the late date of their introduction, bronzes were quickly joined by iron; thus the Korean Peninsula has a separate Early Bronze Age, but its nominal Late Bronze Age doubles as the Early Iron Age (Chapter 10). In the Japanese archipelago, iron and bronze were imported in quick succession in the Yayoi period (Chapter 13), so that the concepts of Bronze and Iron Ages simply do not apply.

Thus, the end of the East Asian Bronze Age, as well as its beginning, is indeterminate. Bronzes are still with us, of course, and the lack of clear Iron Ages in East Asia is due to the use of other materials and historic situations as period designations. This chapter arbitrarily defines the Mainland Bronze Age as 2000–850 BC; antecedents and this main period will be discussed here, but further developments of bronze technology and related cultural aspects are treated in later chapters.

Bronze and agro-pastoralism

The growing use of bronze across the northern Mainland corresponded with an increased presence of herd animals. In contrast to the devastation of central Mainland Neolithic societies by 2000 BC, the northern reaches of the Mainland saw the development of new cultures that slightly preceded the abrupt climate event and carried on into the 2m BC. The Northern Zone, stretching from the Gansu Corridor in the northwest to the Manchurian Basin in the northeast, was home to several early bronze-using societies characterized by

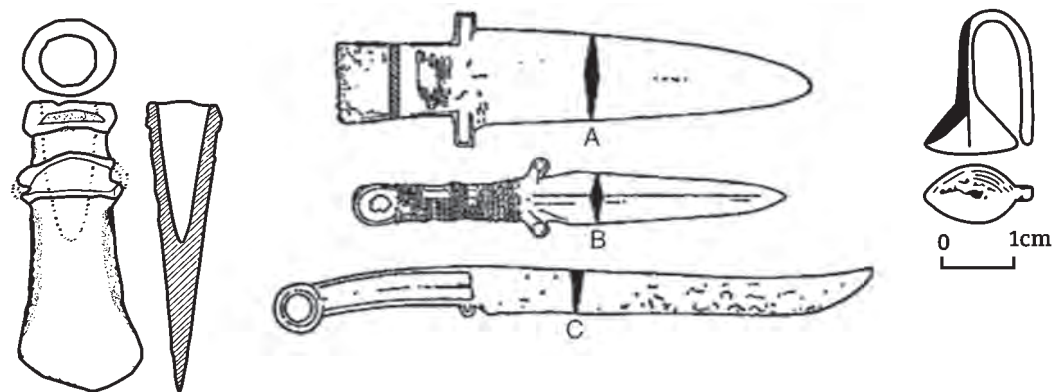


Figure 8.2 Early Northern Zone bronzes from west to east

Left: bronze socketed axe from the Andronovo steppe culture imported into the Tarim Basin

Center: bladed weapons from the Zhukaigou site

Right: trumpet-shaped earring from the Lower Xiajiadian culture

textured and painted pottery, millet agriculture, herding and hunting. The development of agro-pastoralism by these groups was no doubt spurred by increasing aridity in the region as well as by increasing contact between Northern Zone occupants and the steppe cultures of Eurasia.

Agro-pastoralism goes one step further than simple animal husbandry. The presence of herd animals in contrast to pigs kept near the house changed the economic basis of society, with differing seasonal demands: sowing and harvesting for the farmer, versus finding summer pasturage and overwintering sites for the herder. The relations between farmer and herder can vary widely: the two, farmer and herder, might be the same person or different people within one household, or households shifting temporally from one strategy to the other, or different clans or ethnic groups that interact on a symbiotic level – with herd products exchanged for cultivated products – or mutually hostile groups, which might result in mounted raiding. Mobile pastoralism, however, did not impinge on the Northern Zone until the late 1m BC in the Zhou period.

Here we will review three northern agro-pastoralist cultures that overlapped temporally with the rise of the most important Bronze Age society on the Mainland, Erlitou. The Qijia, Zhukaigou and Lower Xiajiadian cultures are judged to be similar in their subsistence patterns, and each is the earliest bronze culture in its respective area.³ Evidence exists of communications among these cultures and with the northern steppe (Figure 8.2) as well as the Erlitou/Shang region. Considerable detail will be offered below in support of the local development of these cultures,ⁱⁱⁱ in opposition to the earlier hypothesis that their herding and bronze aspects represent the intrusion of steppe peoples into the Northern Zone.

ⁱⁱⁱ Current literature contains considerable variation in period durations for the cultures named below. The dates adopted here are mainly from Liu & Chen 2012 and Underhill 2013.

Qijia and Siba cultures

At the western end of the Northern Zone, the Qijia culture (2300–1500 BC) appeared across the western Great Bend of the Yellow River into the Gansu Corridor (see Figure 8.1-A).⁴ Through time, although population increased, sites became smaller and were occupied for less time, leading to interpretations that Qijia became a more mobile society with increasing reliance on herding animals.

However, farming (including pig-raising) from stable settlements still accounted for the greater economic input. Cereals such as millet, wheat and barley were the mainstays of Qijia existence. Up to 35% of burials (83% at one site) contained pig bones, outstripping grazers such as sheep/goats (22%) and cattle (2%). Hunting with microlithic equipment supplied further wild game. The earliest known domesticated horse remains are from Qijia, indicating communication with pastoralists farther to the northwest; horses are present in Qijia but not numerous. Nevertheless, the ceramic remains show direct continuation from the earlier Neolithic; so Qijia was *not* an intrusive culture, and indeed it formed the basis for later Bronze Age cultures in the region.

The neighboring Siba culture (1900–1500 BC)⁵, in the Gansu Corridor, exhibits an even greater commitment to agro-pastoralism. A clear ecological division separates farming communities in the piedmont region, with few herd animals or microliths, from pastoral/hunting communities in the grasslands with herds and microlithic hunting equipment.⁶ Few settlements are known, but burials yield several sophisticated bronze types.

Bronze objects from these cultures appear to relate directly to the easternmost steppe cultures, early on from the Afanasievo culture (3300–2500 BC) and later from the Andronovo steppe culture (1800–1400 BC) via the Dzungarian Basin. More than 100 small bronze and copper artifacts plus stone molds are known from Qijia;⁷ unalloyed copper plus bronzes of several different compositions were fashioned through casting, hot-working and cold-working.⁸ Thus, Qijia and the Gansu Corridor are acknowledged as early bronze-producing areas in the northwest, probably having learned these technologies from the steppe cultures.

Zhukaigou

In the middle Northern Zone, the Zhukaigou culture (2000–1400 BC)⁹ developed out of the Late Neolithic in the upper Great Bend of the Yellow River (see Figure 8.1-A). It partook of the general Longshan East Coast ceramic tradition with footed and handled

vessels made in molds or on potter's wheels. The cooking ceramics, however, were finished with cord-marking – one type of hollow-legged *li* vessel becoming a hallmark of steppe cultures.¹⁰ Burial types and painted ceramics excavated at Zhukaigou site reveal increasing relations through time with Qijia peoples to the west, including possible migrations of Qijia peoples into the Zhukaigou region.¹¹ Bronze and sheep/goats arrive together presumably from that direction;¹² sheep/goats were more than twice as numerous as cattle,^{iv} while hunted wild animals played a lesser role. Farming is considered to have declined due to over-exploitation from the Neolithic onward, and no grains have been discovered, though the society remained sedentary with house and storage pits in evidence.¹³

Zhukaigou culture is divided into five phases,¹⁴ with Qijia relationships strong in Phase 3. Initial bronzes of that phase comprised needles, awls, bracelets, and earrings. In Phases 4 and 5 in the mid-2m BC, artifacts testify to interaction with steppe peoples and the Erlitou and Shang polities. All bronze vessels and weapons were locally made though adopting forms from different areas: Shang-style *ge* halberds (see Figure 8.2-A) contrast with steppe-style ring-pommeled daggers (see Figure 8.2-B) that are characteristically cast with hilt and blade together in one piece. The dagger is double-bladed, useful for stabbing as well as slashing, while the single-bladed knife (see Figure 8.2-C) is good for slashing and cutting. The latter is of hybrid form, having a ring pommel but an unusual recurved blade. Both dagger and knife eventually evolved into swords, with the number of blade edges determining the way the weapons were used.

Lower Xiajiadian

At the eastern end of the Northern Zone, a dramatic increase in northeastern sites in the early 2m BC followed sparse settlement there after Hongshan disappeared. The Lower Xiajiadian (XJD) culture (2000–1400 cal. BC)¹⁵ was part of the revival of this area (see Figure 8.1-B), and estimates of population densities in Lower XJD are 50 times those of Hongshan. Site excavations, especially at the Dadianzi cemetery with more than 800 graves excavated, give us a good idea of the material culture. Metal objects consist of bronze ornaments such as finger rings and unusual bronze caps (some anchored with nails) for wooden handles/hilts; gold earrings could be simple circlets or curled trumpet shapes in common with the steppe zone cultures.

^{iv} Reported percentages vary rather greatly between Liu and Chen 2012: 312 and Shelach 2009: Tables 3.1, 3.2.

Ceramic shapes and decorations indicate communication with the Erlitou culture zone, as discussed below. Tools included stone axes (some of jade), hoes and knives, while weapons were mostly bone arrowheads, indicating bow and arrow use. The economy was based on farming with animal husbandry of pigs, cattle, and sheep/goats – in that order of prominence – while deer hunting was an important adjunct. Buckwheat and millet appear to have been major crops.¹⁶

Lower Xiajiadian is recognized as a sedentary society. Techniques of tamped-earth walls, lime-plastering wattle-and-daub walls, and adobe brick-making were imported from the Central Plain, but building stone walls was a local adaptation toward the end of Lower XJD. Some houses had solid stone footings and earthen walls, while others were built of mudbrick. The houses were sometimes closely surrounded by a secondary wall, thought useful for insulation. Similarly, some whole sites were walled with stone or tamped earth faced with stone; as a rule the walls were situated where the natural topography offered some defense. Improvements in arrowhead efficacy and the remains of violent deaths support interpretations of some warfare.

House sizes and construction can be parsed into three status groups, as can the 804 burials analyzed at Lower XJD cemetery at Dadianzi. Hierarchical organization is also expressed territorially: surface surveys reveal two- or three-tiered site hierarchies comprised of several settlement types (differing in size and presence/absence of walls).¹⁷ The reiteration of these site clusters over the landscape without a single dominant center suggests semi-autonomous social groupings that may have been in competition with each other. This society of growing complexity vied with similar developments in the Erlitou sphere.¹⁸

Bronze and Erlitou

The Erlitou site (1850–1550 BC)

Significant changes in metal use occurred with the production of bronze vessels at the Erlitou site around 1700 BC. This bronze-working tradition is named here as the Shang, since it became the major attribute of the Shang Dynasty. Shang bronze phases are defined on the basis of technical and stylistic advances ascertained at four successive palatial sites located in the Shang core (Figure 8.3): Erlitou, Erligang near modern Zhengzhou City, and Huanbei and Yinxu near Anyang City. The Shang bronze culture spread far beyond the core, involving different peoples in complex social developments that led into historic Chinese dynastic organization.

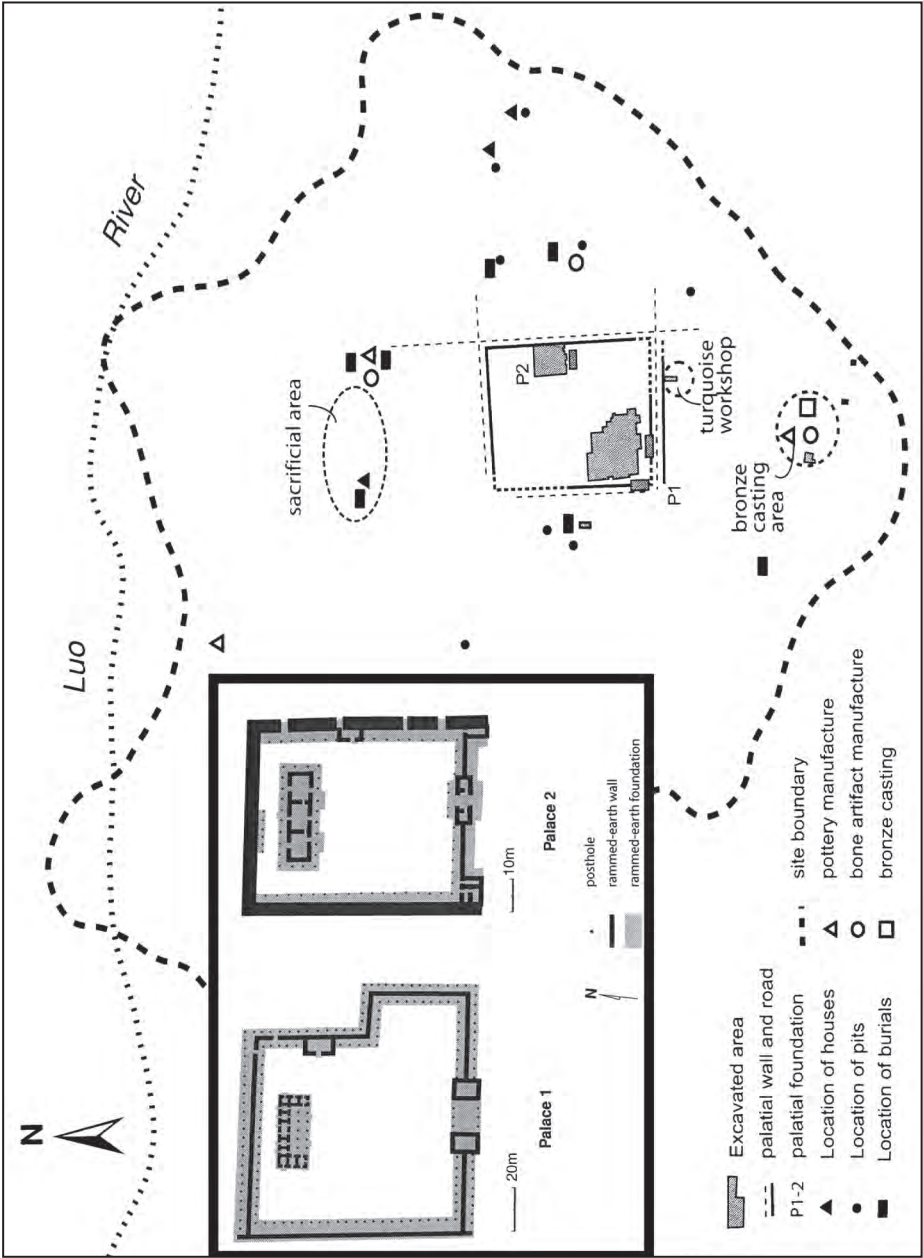


Figure 8.4 The Eritou site and two palaces (inset)
Each palace compound, built in Phase II, was enclosed in a walled corridor, revealed by postholes. The compounds have a southern gate; building foundations at their northern interior (25 x 36m, 12.5 x 33m) are at the same position as in later historic palaces. In Phase III, these compounds were enclosed by roads to which walls were added in Phase IV. The whole urban area of Eritou was unfortified, but the walled 'palatial town' and increased number of arrowheads indicate growing conflict in the region.

The site of Erlitou¹⁹ is named after a nearby modern village and thought by many (but not all) to have been the capital of the legendary Xia Dynasty.²⁰ The site's growth is monitored through four phases: from nothing to 100ha in Phase I and up to 300ha by Phase III, contracting somewhat in Phase IV. Commentators attribute the rapid expansion to in-migration and nucleation of population from elsewhere.²¹ In its early phases, Erlitou was already economically diverse, with a high proportion of agricultural tools and also craft production of pottery and bone and jade objects. Bronze casting began in Phase II (from 1750 BC), first using bivalve stone molds, followed by the invention of the ceramic piece-mold. The earliest products of piece-mold casting were bells; vessels were not cast until Phase III, changing forever the nature of elite interaction on the Mainland. In Phase IV, the site declined due to competition from the rising Shang presence at nearby Yanshi and Zhengzhou.

Phase II entailed substantial expansion of infrastructure. Roads were laid out, intersecting at right angles, and walls partitioned off workshop areas in the south. Foundation platforms for palaces stood proudly in the center of the growing city. In Phase III, walls were constructed around the central palace area, and two new palace compounds were built (Figure 8.4 inset), each 1ha or less in area, resembling in size the Wangchenggang compound of the Late Neolithic (see Table 7.2).

Two groups of Phase III elite burials are known from the palace courtyards; the largest – a shaft tomb 5.2 × 4.25m and 6m deep – was located behind the foundation platform of Palace #2.²² These burials all yielded the crafts noted above plus cowries and lacquerware. One extraordinary burial was of a male in his 30s accompanied by a dragon-shaped mosaic in turquoise and a bronze bell, recalling finds from Taosi. No tomb attributable to a 'king', however, has yet been found. Almost all of the sumptuary goods of turquoise, jade and bronze produced at Erlitou were also consumed at Erlitou. Very few graves yielding these prestige goods exist beyond this city site, even though it stood at the apex of a clear, four-tiered territorial hierarchy.

With the advent of piece-mold bronze-casting, Erlitou became the first Bronze Age culture in the northern Mainland. Following the complete demise of the earlier Longshan cultures by 1800 BC, two questions stand out for future research: how Erlitou grasped the reins of the trends toward settlement and social hierarchy, and what it might have absorbed from the Late Neolithic cultures as craftspeople were dislocated across the landscape.

Erlitou culture and polity

The Erlitou site formed the center of Erlitou culture, which stretched for 560km E/W along the Huanghe Corridor and was contemporaneous with 14 other known Late Neolithic cultures of the central and north-northeastern Mainland.²³ Survey within a 5km stretch along the Yi-Luo rivers revealed a four-tiered settlement system:²⁴ Erlitou itself as a primary center, three secondary centers (40–100ha), five large villages (15–39ha) and many small villages (<15ha).^v The development of a four-tiered site hierarchy is consistent with findings in other areas of late 3m BC occupation as we saw earlier; moreover, it appears Erlitou was also newly founded, as were the three main sites discussed in Chapter 7. However, the Erlitou culture came to be based economically not on stone- or jade-working but on bronze-working. This technical advancement seems to have promoted Erlitou to a premier position in the Central Plain, though it was not the only bronze culture to have arisen in the early 2m BC.

Researchers propose that the development of Erlitou as a state system was contingent on the economic system necessary for the development of bronze-vessel casting.²⁵ It is significant that major deposits of copper, lead and zinc lay in the mountains upstream from Erlitou site on both the Yi and Luo Rivers and along the northern side of the Huanghe Corridor.^{vi} The establishment of the Dongxiafeng site near the old town of Taosi was likely involved in the extraction of copper as well as smelting and casting bronzes, possibly as a state-run outpost;^{vii} tin was probably available from small local deposits in the Erlitou cultural sphere. However, many more copper and tin resources were available in the Yangzi Basin, where an outpost at Panlongcheng was established in late Erlitou Phase II; raw materials could be transported from there northwest to Erlitou by smaller rivers or via river valleys. Thus, Erlitou stood near the confluence of major river transport systems where it could coordinate essentials for bronze-casting. The tasks of mining and smelting the ores, making the molds and casting the vessels in a specialized and monopolistic craft system were all activities for which administrative skills were needed to govern raw material supply and production.

^v The Yi and Luo flow together to form the Yiluo River downstream; the Yi-Luo spelling here designates all three. The Yiluo survey covered some areas of tributaries that flowed into both the Yi and the Yiluo.

^{vi} See figs. 5 and 6 in Liu & Chen 2003 for copper and tin source locations.

^{vii} Could competition from the Central Plain account for the destruction seen at Taosi??

Significance of Erlitou bronze vessels

The Late Neolithic had previously witnessed prestige goods of eggshell pottery and jades, but the appearance of bronze vessels at Erlitou signaled a completely new form of elite status display. The East Coast ceramic repertoire from the Middle Neolithic onward included many vessels for the pouring and serving of liquids, as we saw in Chapter 6. The occurrence of these in rich burials confirms their role in elite activities. Feasting or the ritual sharing of food and drink is generally recognized as an important stage for political maneuvering, and to have one's rivals convert to participate in one's own rituals is a strategic coup d'état. This seems to be what happened at the end of the Neolithic, when one particular group of elites in the emerging Erlitou culture co-opted bronze for the production of their ritual vessels. The use of bronze casting to make elite drinking vessels was very much a case of one-upmanship among Late Neolithic cultures and contributed to the spread of new rituals involving bronze vessels. The vessels were widely adopted, forming an unprecedented "cultural hegemony"²⁶ that characterized the succeeding Shang cultural sphere – but not the regions beyond it.

Most of Erlitou's regional contemporaries remained unaffected by its core development; however, several artifact similarities found at some distance attest to communication, even if indirect. In the northeast, the Dadianzi cemetery of the Lower Xiajiadian culture yielded painted pottery with designs resembling the Erlitou bronze plaques inlaid with turquoise (BOX 8.1). One hypothesis proposes that Erlitou individuals traveled to the northeast seeking metal resources.²⁷ Jades, a ceramic vessel and a turquoise-inlaid plaque almost identical to those excavated at Erlitou are present in the Sanxingdui culture of the southwest, while Sanxingdui became a major bronze culture, as discussed below. Some scholars cite Erlitou as the stimulus for Sanxingdui bronze-working,²⁸ though the latter is not considered an actual offshoot of the Erlitou tradition and will be treated as an independent phenomenon here.

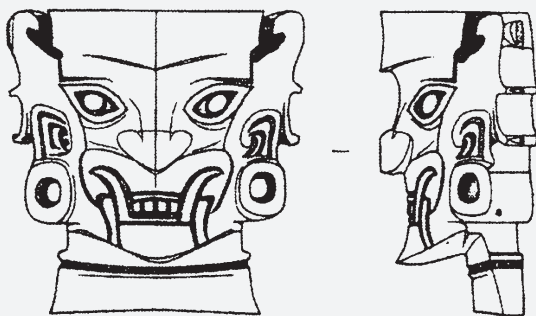
The Shang bronze tradition

Wine vessels excavated from Erlitou are currently the earliest locally produced bronze vessels in East Asia (BOX 8.2). Their manufacture was extraordinary, using a piece-molding system unknown anywhere else in the world at the time. Speculating on the origins of this full-blown technology, some scholars have postulated an earlier phase of sheet-metal working. The ceramic *gui* drinking vessels at the Lower XJD site of Dadianzi, which have bosses at crucial

BOX 8.1 Material similarities between Erlitou and other cultures

Erlitou bronzes were undecorated in this early stage, but objects from cultures in communication with Erlitou bore designs that might have evolved into the *taotie* mask design that so distinguishes later Shang bronzes.

Turquoise-inlaid bronze plaques (right, *ca.* 15cm long) as found at Erlitou have also been discovered at Sanxingdui in the far southwest.



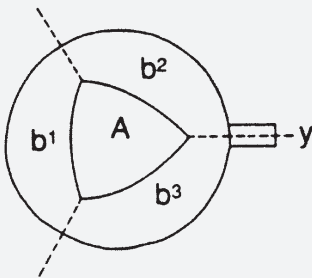
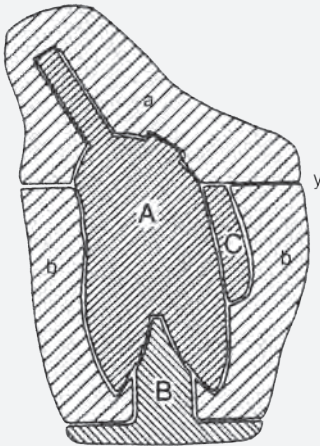
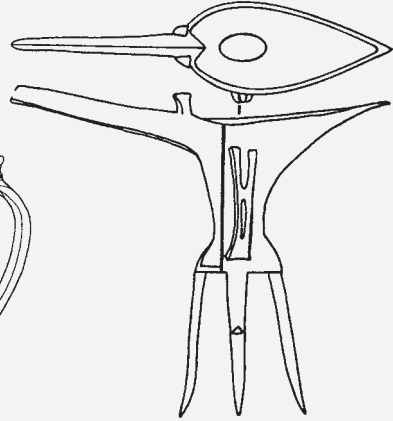
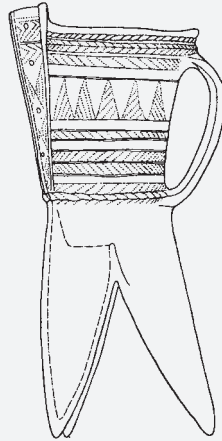
Shijiahe, a Late Neolithic culture located south of Erlitou (see Figure 8.1), produced small jade sculptures of human faces (above), which seem to have influenced Sanxingdui bronze faces and are represented on a jade scepter (right) from Erlitou. Crucial here are the eyes: almond-shaped with clear differentiation between pupil and white of the eye. This eye shape is distinctive of *taotie* designs and contrasts with round eyes portrayed on Liangzhu jades.



The almond eye pattern also appears at Dadianzi, a northeastern Lower Xiajiadian culture site whose painted pottery designs (left) very much resemble the Erlitou plaques via elaborately outlined, symmetrically curled designs with the almond eye pattern.



BOX 8.2 Erlitou innovations in bronze casting



Top left: Late Longshan ceramic whiteware pitcher, used in ritual drinking and feasting.

Top middle: Lower Xiajiadian ceramic pitcher possibly imitating a sheet-metal vessel.

Top right: The earliest bronze vessel, a *jue* from Erlitou, is awkward compared to ceramic pitchers: its long pouring spout, extending to the left, seems to overbalance its spindly legs.

A piece-mold system (left) was used to cast vessels; the vessel to be cast is a *he*. The inner cores for body (A) and handle (C) are surrounded by a three-piece assembly mold (b1, b2, b3), capped by a top section (a) and supported by an inter-leg core (B). Spacers separating the mold and core sections made a thin space into which the molten bronze was poured through the opening at (y). This 'overall' casting was augmented in Late Shang and Early Zhou with the casting of separate parts and welding them together.

seams and joints, have been interpreted as representing an earlier phase of sheet-metal construction; this suggestion is hotly denied by others.²⁹ Still, reassessments of the material culture west of the Pamirs have identified possible prototype sheet-metal vessels for the *gui* hollow-legged wine vessel and the *gu* beaker.³⁰ Such contacts to the northwest should not surprise us, as we already know of the importation of wheat, barley, sheep and goats from this direction in the Late Neolithic and the spread of shared material culture across the Northern Zone in the early Bronze Age.

Most scholars assign a critical role to the Central Longshan ceramic specialist, who had the expertise to ‘invent’ the piece-mold made of loess clay that was resistant to high-temperature casting. Not only bronzes but also white pottery found at Erlitou was partly made by mold, and the ceramics were fired at about 1200°C,³¹ indicating a sophisticated kiln technology; perhaps the knowledge and experience of high-temperature kiln firings were brought to bear on the smelting process.

Keys to the invention of the piece-mold in the Central Plain region might be the bells found in Late Taosi and Erlitou or the Eurasian socketed axes of the 2nd BC from the northern Tarim Basin.³² Unlike making flat objects such as knives, rings, weapons and tools, which could be cast in flat, bivalve molds, casting bells and socketed objects required the presence of a clay core to make a hollow on the inside. A short step from a bivalve mold to a composite mold incorporating a core might have led to a multi-part mold for casting vessels. Nevertheless, the Erlitou vessels with legs, spouts and handles suggest there are more stages in casting innovations yet to be discovered.

Shang bronzes

Certain standard shapes are characteristic of Shang bronzes and are often referred to by their Chinese names (Figure 8.5). Among these, the *jue*, *jia* and *he* were developed at Erlitou directly from similarly shaped ceramic vessels made of white clay at the site. These have pouring spouts, and the *jue* is thought to have been used as a cup for drinking from the spout rather than a pitcher for pouring due to the placement of the handle on the side. The later shape repertoire included basins, bowls, steamers, tripods, quadrupods and goblets. The earliest vessels at Erlitou are undecorated except for the rim knobs and perforated handles, but beginning from the next Erligang phase, four different decorative styles are noted.³³

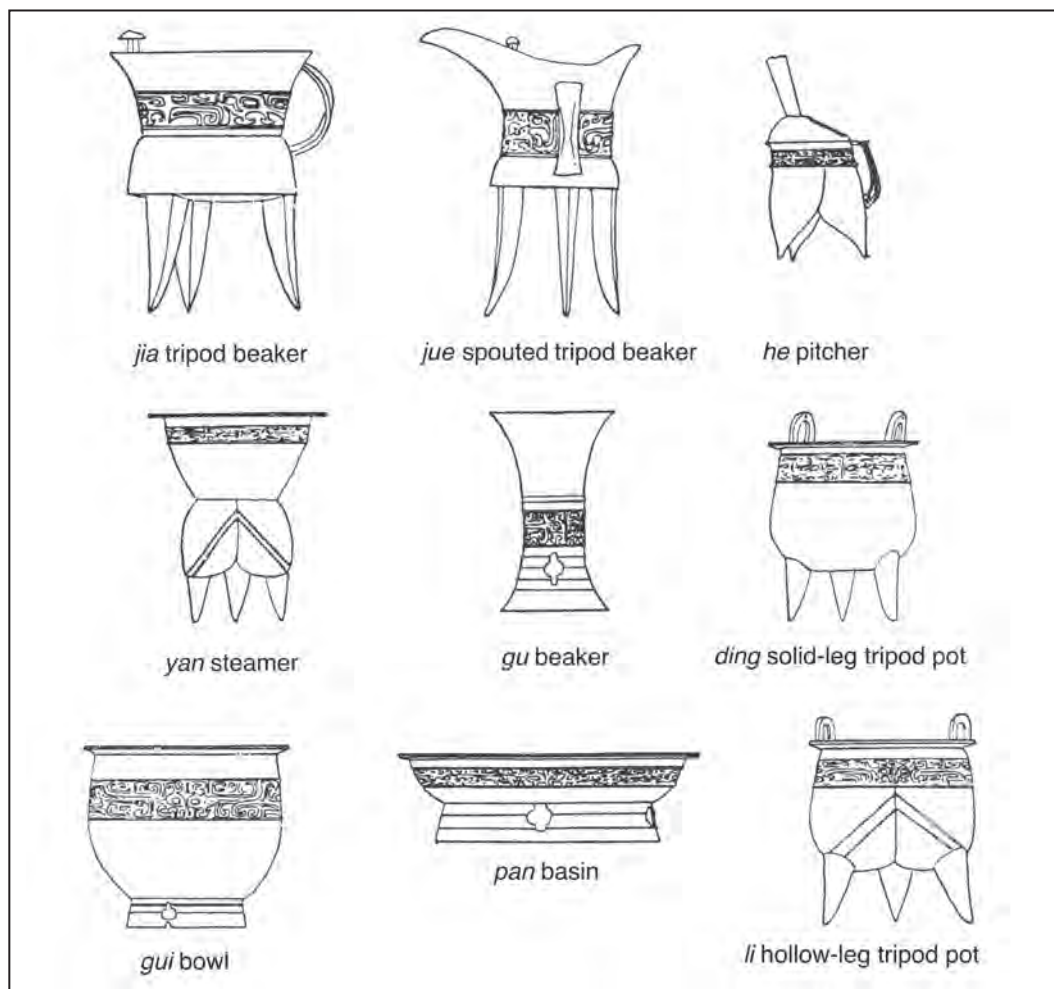


Figure 8.5 Shang vessel shapes

Some of the earliest designs on Shang bronzes were simple incised lines; if carved into the inner mold surface, the lines stood proud on the vessel. Incising was never common on Mainland Neolithic ceramics but can be seen on Hemudu vessels and in East Coast jade-working – on Dawenkou jade axes (see BOX 7.1) and in the Liangzhu ‘sacred human and animal motif’, often called the ‘face motif’ (Figure 8.6). Incising might be another case of technological transfer from regional Neolithic crafts.³⁴ Vessel shapes were either rounded or angular in form, and some were cast on integral square stands.³⁵ Designs with identifiable animals such as bird, fish, tiger and turtle also entered the motif repertoire, possibly through contact with northern and southern bronze traditions.³⁶ Earlier styles were revived in Late Shang and Early Zhou, making quick attribution on stylistic grounds difficult for the uninitiated.

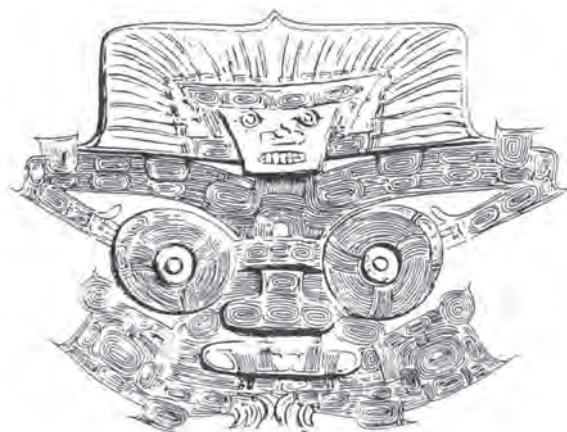


Figure 8.6 Shang *taotie* design development

Face motifs incised flat (top left) or wrapped around a corner (top right) on Liangzhu jades, together with the almond eye of Erlitou (see BOX 8.1), formed sources of inspiration for the development of the *taotie* beast motif on Shang bronzes.



I Fine-line incision



II Ribbon motif



IV Suppressed background

Taotie styles

Style I consisted of thread-relief designs produced by incising patterns into the mold. These contrast with the mold-incised ribbon relief of Style II, accomplished by widening the incised area to form a broad, smooth, raised band on the finished vessel. Style III moved the carving of the decoration from the mold to the clay model. In Late Shang Styles IV and V, background and motif were clearly separated; the former also incorporated seam flanges often separating decorative panels, while Style V provided relief in the foreground decoration.

The above techniques concern the methods of carving the decoration for the vessels, but what were the motifs? Overwhelmingly, the Shang bronze tradition is dominated by the *taotie* (animal mask) – interpreted as a beast variably shown with horns, fangs and claws, and with quills down its back. The face might derive from the Liangzhu face-decorations on jade – the claw similarities are especially notable. But the eyes are formed differently: Liangzhu jades have round eyes like animals, while the *taotie* has pointed oval eyes like humans,

showing the white of the eye. This eye form already occurred on small bronze plaques from Erlitou whose designs were inlaid with turquoise (see BOX 8.1). The two eyes of the *taotie* can be interpreted in two ways: they could conceivably belong to one beast splayed to the sides, or to two beasts facing each other head on (see style IV in Figure 8.6). Though Erlitou bronzes did not bear decoration, the *taotie* motif characterizes bronzes made in the successive Shang phases. In addition, animal heads cast in three-dimensional form were also appended to vessels, so that realistic portrayals and fanciful images of beasts co-existed on the same piece.

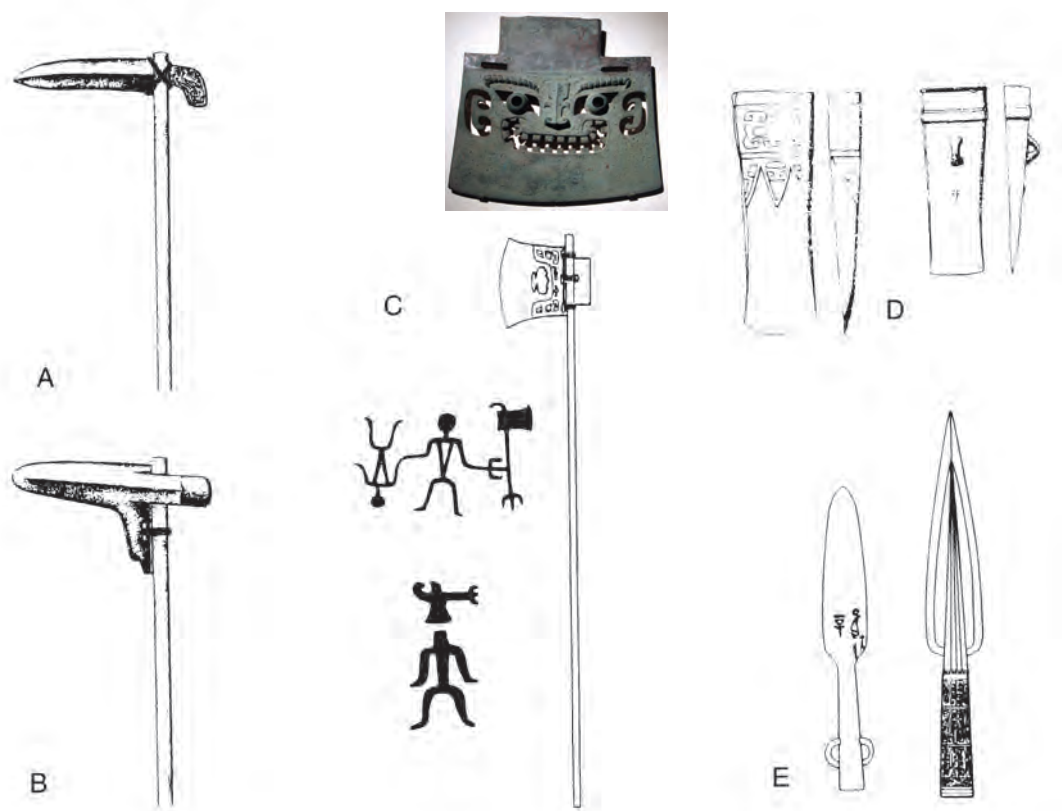


Figure 8.7 Shang weaponry

The most distinctive of Shang weapons was present already at Erlitou: a bronze dagger-ax (*ge*) hafted perpendicularly to a long pole and used with a chopping motion (A). By Late Shang, a flange was extended down the shaft to provide for more secure hafting (B).

Executioner axes are hafted like the *ge*, and emblems cast into the bronzes vividly show their use (C) – gruesome reminders of Shang ferocity in dealing with sacrificial victims. Often these bear a face motif with open mouth lined with sharp teeth, suggesting that the ax was to consume the life of the victim.

Socketed axes (D), spearpoints (E), and animal-head knives indicate contact with the steppe cultures, whence came the charioteer complex.

In addition to the vessels, Erlitou phase bronzes included a miscellaneous collection of implements, ornaments and weapons made with bivalve molds – so this earlier technology was not abandoned with the development of the piece-mold. In the following Erligang phase, named after a site near the Early Shang capital at Zhengzhou, weaponry became the second most important bronze artifact category (Figure 8.7).

Most Shang weapons were cast in typical bivalve molds, which were good for flat objects. In Late Shang, some hilts were inlaid with turquoise mosaics or fitted with jade blades, indicating their valued status. These weapons contrast with socketed axes and spearpoints, which partake of steppe manufacturing technology using bivalve-with-plug molds.

In sum, the Shang bronze tradition grew out of technological introductions from other regions, which were then refined and converted into a ritual system of great political influence that centered on wine vessels. The Zhou peoples in the Wei River basin to the west became most acculturated to Shang rituals – enough to become political rivals of Shang and eventually overthrow the Late Shang state.^{viii} Elsewhere, imported Shang bronzes were often treated as status objects or wealth, or were used in local rites. New bronze types were added to the repertoire, sometimes by copying local pottery shapes, or by the receiving cultures casting their own vessels in Shang styles but adding local flavor, giving rise to hybrid bronze styles.

Southern bronze cultures

Lower and Middle Yangzi

The lower Yangzi region from the East Coast into the Poyang Lake basin hosted a bronze culture called Wucheng between 1500 and 1000 BC.³⁷ The Wucheng walled settlement and the Xin'gan Tomb comprise the main sites. Various authors have identified shared characteristics with its regional predecessor Liangzhu, with Southeast Asian Bronze cultures,³⁸ and Panlongcheng bronzes.³⁹

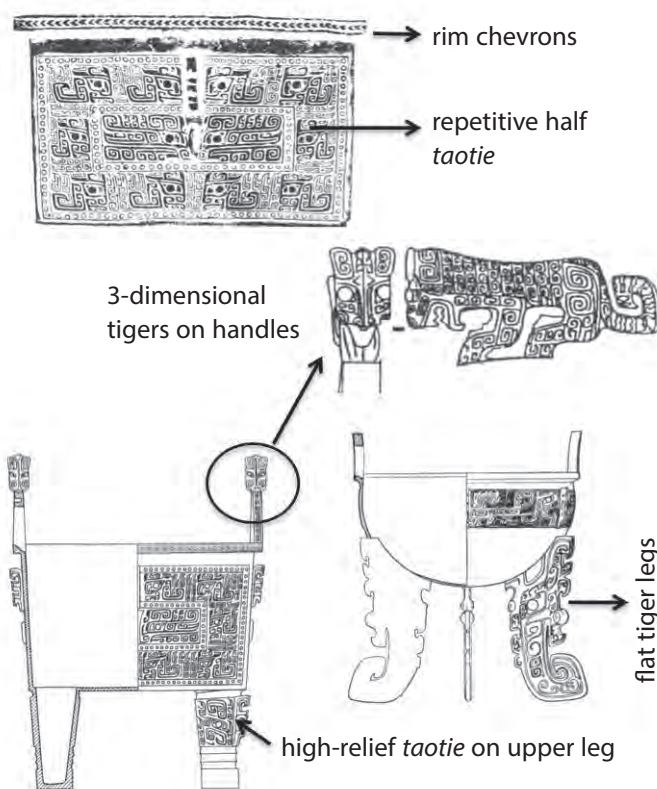
The Xin'gan Tomb is the second richest find of Shang-period bronzes,^{ix} many of them bearing hybrid designs (Figure 8.8). From a collapsed and deteriorated lacquered wood coffin and chamber burial were recovered 475 bronzes of all sorts, 754 jade and beadstone artifacts, and 139 ceramics of local glazed stoneware. Many of the

^{viii} The term 'pre-dynastic' is applied to Zhou remains in the Wei River valley before the Zhou overthrew Shang and established their own Royal Zhou Dynasty.

^{ix} The first being the Fuhao Tomb, discussed in Chapter 9.

Figure 8.8 Wucheng hybrid bronzes

Outstanding southern stylistic features are highlighted below. The repetitive use of the single-sided *taotie* resembles the stamped patterns of southern ceramics. The flat-legged, bowl-shaped *ding* tripod shown here was excavated from the Fuhao Tomb, the richest Shang tomb yet recovered.



weapons were of local style: socketed spearheads were numerous while scarcely present in central Shang tombs.⁴⁰ The inclusion of ceramics and so many jades in a tomb also departs from the Shang mainstream; the ceramics consisted of stonewares, as Wucheng served as an important production center of this new kind of pottery (see BOX 9.1).

The spread of Erligang-type vessels into the Yangzi Basin stimulated the creation of at least two new bronze forms: drums and large bells.⁴¹ The area west of Panlongcheng deep into the Dongting Lake basin also contributed flamboyantly decorated vessels to the Late Shang repertoire.⁴² The northern part of this region hosted the early capitals of the Zhou state of Chu, in which bronze casting was taken to new heights in the Eastern Zhou period (Chapter 10).

Sichuan Basin: Sanxingdui

Not a rival of Shang in a political sense like the Zhou – but certainly a rival for our attention – the Sanxingdui culture in the Red Basin of Sichuan, southwest Mainland, spanned most of the 2m BC

(1750–1000 BC). It was succeeded by the Shi'erqiao culture, focused at the Jinsha site (mentioned in BOX 7.1), in the early 1m BC.⁴³ Investigators make the interesting proposal that the ritual system of Sanxingdui was destroyed and the elite shifted the capital from the site of Sanxingdui to Jinsha in an attempt to re-establish secular control.⁴⁴

The main site, Sanxingdui, is unusual in not having been newly founded: it grew out of the Late Neolithic, acquiring a site wall, encompassing 3.5km², and earthen foundation platforms after 1750 BC. This early phase yields no outstanding bronzes except for a plaque inlaid with turquoise (see BOX 8.1), but fine jades are abundant. The extraordinary bronzes of the late phase were recovered from two large pits situated in the southwestern quadrant near three large mounds. The pits yielded a multitude of ritual artifacts: one tally counts 913 broken and burned bronzes, 4724 cowries, 65 gold objects, 615 jade objects, 85 stone artifacts, 80 ivory tusks, 39 pots, and burned animal bones.⁴⁵ Among several possible interpretations, the most likely is that the pits were disposal areas for ritual objects discarded after use. But since the pits represent the very end of Sanxingdui occupation, the burial of the objects is interpreted by some as the destruction of the ritual system before the move to Jinsha.⁴⁶

Although co-existing with the Shang tradition in the Shang period, the Sanxingdui bronze tradition differed quite radically from central Shang. In fact, it was so different that one analyst believes “it is not easily lumped into a general characterization of early ‘Chinese’ culture”.^{x,47} The bronzes are completely unlike Shang-tradition bronzes, though they were made mainly by piece-mold and sometimes show the same motifs: e.g., *taotie*, spiral background designs. The presence at Sanxingdui of several Erlitou artifacts such as bronze vessels and plaques inlaid with turquoise might signify long-distance exchange leading to the transference of bronze technology. However, the human forms that characterize Sanxingdui bronzes are unexpected and shocking (Figure 8.9): head and neck busts almost half a meter high, possibly cast as hollow fittings for post ends, are accompanied by small masks 15 × 20cm, and statues about 2.5m high. Further extraordinary objects are tiered bronzes occupied by different figures: animals, humans, and objects resembling crowns and treasure-boxes; and then there are the trees reaching almost 4m high with flower buds and birds all cast in bronze and soldered on.

The basic sculptural quality of these bronzes is at odds with the Shang emphasis on vessels, however much three-dimensional decoration the latter might bear. Despite evidence of contact, the

^x Rightly so, since we shouldn't speak of ‘China’ until the Mainland was unified by the Qin (Chapter 12).



Figure 8.9 Sanxingdui bronzes from the Sichuan Basin

Protruding eyes are unique, though the almond eyes are seen at Shijiahe, suggesting cultural relations. Intricate sculptures attest to skilled bronze casting, and use of gold is a steppe tradition.



southwestern tradition is not derived from Shang; moreover, the Sichuan Basin lies near major routes from eastern Central Asia into the southwestern Mainland. The general exotic layout of the Sanxingdui faces has more in common with small carved jade heads 2–3cm in height found in the Epi-Shijiahe culture to the southeast in the central Yangzi drainage (see BOX 8.1, upper left).

The Sichuan Basin was the home of the Shu and Ba peoples mentioned in the Shang oracle bones and early texts. They formed the Ba-Shu culture and the Shu state during the Zhou period and remained independent until annexed by Qin in 316 BC.⁴⁸

The Northern Bronze Complex

Past research on the bronze cultures across the northern frontier has been hindered by poor chronological control of the finds with little excavation and few radiocarbon dates, a tendency to emphasize

spectacular bronzes – often from museum collections without proper provenience – and variable emphasis on minute cultural differences between areas or sweeping generalizations of cross-Eurasian cultural contacts. Many of these problems are now being overcome, especially via further excavations, finer chronologies and better understanding of the role of subsistence practices in cultural exchange.⁴⁹

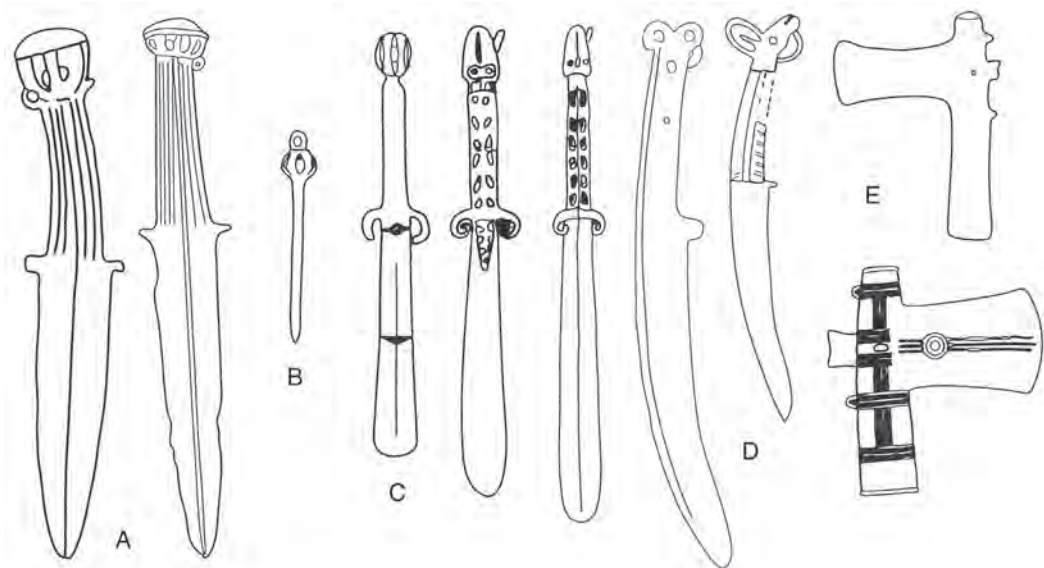
The occurrence of small bronzes in agro-pastoral societies such as the three reviewed at the beginning of this chapter constitute the first stage of development that extended across the entire Northern Zone. Such small bronzes were even present in the Shandong region (see Figure 8.1-D) despite the absence of husbanding grazing stock there.

The area most interactive with Late Shang seems to have centered on the eastern Great Bend of the Yellow River (Lijiaya in Figure 8.1) and the old Fen River valley. Sites of the Lijiaya culture (14–11c BC) yielded Anyang- and steppe-style bronzes, and locally cast bronzes of hybrid style.⁵⁰ As with Wucheng in the south, Lijiaya and its surrounding peoples in the northwest incorporated Shang bronzes into their local culture while creating their own interpretations. What sets this region apart from others is the high incidence of gold objects – at first, small things like earrings, though gold becomes a highly valued and conspicuous aspect of northern cultures in the Zhou period.

In the Late Shang period, a distinctive ‘Northern style’ of bronzes developed and spread from the Great Bend of the Yellow River to the eastern Manchurian Basin, lasting into Early Zhou (Figure 8.10).⁵¹

Figure 8.10 Northern Zone bronzes from Late Shang into Early Zhou

The steppe daggers (A) have acquired jingle-bell pommels; hairpins (B) and spatula-type bronzes were status symbols. The latter sometimes have alligator heads with a tongue rattle, continuing the ritual importance of the animal from Neolithic times (see BOX 6.3). The two curved knives (D) are differently sized, one with an animal-head pommel. Hafted battle axes (E) with tubular hafting holes are characteristic of Ordos bronzes. The bronze helmet (below), recovered from a Lijiaya culture site, is of a type found across the Northern Zone.



The intricate rendering of ibex horns on knife pommels and jingle-bell openwork clearly indicates that the northern cultures practiced lost-wax casting long before it was adopted by the Middle Zhou states.

For the most part, regional cultures maintained agro-pastoral subsistence bases comparable to the first half of the 2m BC, except for the prominent occurrence of horses in the region of the Great Bend of the Yellow River. The Lijiaya culture mentioned above, given its inclusion of Shang bronzes, is thought to have been an area of horse breeding and possibly a transit point for chariots coming from the steppe into the Shang core. The northern bronze cultures comprised both allies and enemies of the Shang and Zhou, with shifting allegiances and periodic warfare, as known from oracle bone inscriptions. With the steppe cultures to the north and state-level societies to the south, the cultures of the Northern Zone can be seen to have had broad connections in all directions, including among themselves.

A third period of northern bronze development dates to the first half of the 1m BC and focuses on the Ordos region within the Great Bend of the Yellow River. The term 'Ordos bronzes' is used variably for this phase, but certain aspects are indeed new to this time period and tradition: in particular, copious horse trappings, chariot fittings, new weapon types, and many personal ornaments including belt plaques and buckles.⁵² This latter phase of the Northern Bronze Complex is more appropriately considered in Chapter 10, after discussion of the Zhou period.

In conclusion

Shang bronze vessels occurred across the China Mainland, often inspiring imitations, illustrating the tremendous appeal of this new elite culture. Except for specific cases like Panlongcheng, these bronzes do not represent the political imposition of Shang on regional societies. The old idea of diffusion from the center is now dead, and even 'core/periphery' thinking is put aside in favor of the idea of a 'network' of contacts among several distinctive cultures.⁵³ Indeed, the Shang core was also taking in ideas, objects and people from various regions. In any case, the different 'mental templates' for Shang *period* bronzes (as opposed to Shang *culture* bronzes) were extraordinarily variable in form and decoration.

The China Mainland in the Bronze Age encompassed many different cultures exploiting various environmental niches and existing at a variety of socio-political levels of organization. The old idea that all of these cultures derived from the central core zone,

represented by the Erlitou and Shang cultures, is no longer viable. The use of 'Shang' and 'Zhou' to designate period as well as socio-political entities masks the reality of a great many independent and interesting alternatives to the Shang and Zhou states. Nevertheless, the fact remains that historic Chinese civilization developed out of these Bronze Age dynasties, and they thus warrant further investigation into their natures, to be seen in Chapters 9 and 10.

Further reading

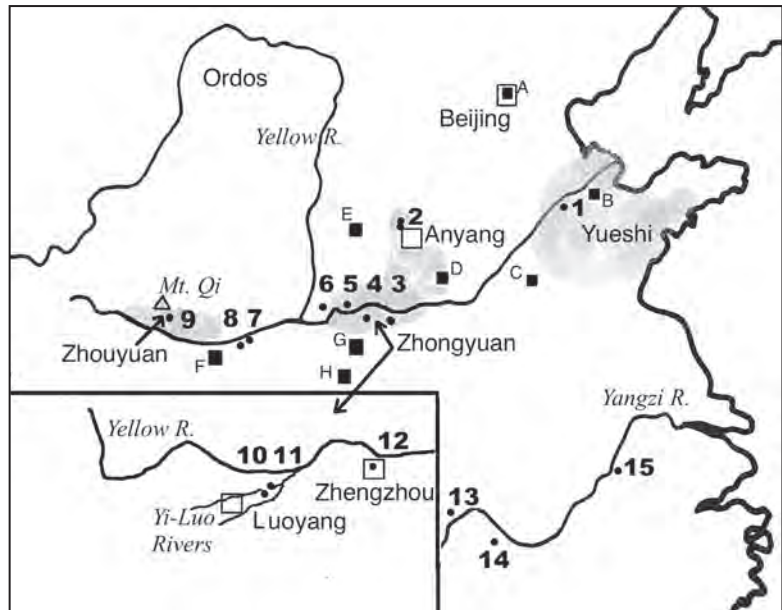
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(1500–770 BC)

The early historic texts of China characterize political development in terms of three dynasties (Sandai): the Xia, Shang and Zhou. Excavations of capital sites and urban centers provide the main information on these dynasties (Figure 9.1, Table 9.1), albeit focusing on elite lifestyles rather than the peasants who supported them. Bronze vessels of this time period were extremely important items in the ritual communications between dynastic rulers and their godly ancestors. Recent research has shown that this function declined in the late 9c BC together with the disintegration of Royal Zhou power

Locations with reference to the modern cities of Beijing, Anyang, Zhengzhou and Luoyang. The Zhongyuan (Central Plain, inset) housed the early capitals of Erlitou and the Shang Dynasty, while the Zhouyuan (Zhou Plain) in the Wei River valley was home to the successive pre-dynastic Zhou and Early Zhou capitals. Upon the takeover of Shang, the Zhou established regional 'colonies' (A–H) within the Shang sphere of influence.

- A Yan, includ. Liulihe,
Yi & Ji capitals
- B Qi
- C Lu
- D Wey
- E Jin
- F Zongzhou
- G Chengzhou & Luoyi
at Luoyang
- H Ying



- | | | |
|--------------------|-----------------|-----------------|
| 1 Daxinzhuang | 6 Dongxiafeng | 11 Yanshi |
| 2 Huanbei & Yinxu | 7 Hao | 12 Erligang |
| 3 Zhengzhou / Bo | 8 Feng | 13 Panlongcheng |
| 4 Erlitou & Yanshi | 9 Qiyi / Qishan | 14 Tonglushan |
| 5 Nanguan | 10 Erlitou | 15 Tongling |

capital	dynasty (bronze style)	location
Erlitou	Xia?/Early Shang (Erlitou style)	south
Yanshi	Early Shang (Erligang style)	south
Zhengzhou	Early Shang (Erligang style)	south
Huanbei	Middle Shang	north
Yinxu	Late Shang (Anyang style)	north
Qiyi/Qishan	pre-dynastic Zhou ~1045 BC	west
Hao-Feng	Early Zhou 1045–771 BC	west
Luoyi, later called Wangcheng	Middle–Late Zhou 771–256 BC	south
various capitals of Zhou (city-)states	Early–Late Zhou	everywhere!

and the increasingly autonomous activities of the various Zhou states. The stories of these states and their expansionist tendencies will be reserved for Chapter 10, but here let us examine the rise of early dynastic states and their natures.

Was Erlitou the Xia capital?

No documents tie the Xia to any particular material culture, but the Erlitou culture area is thought to be in the general geographical region of where Xia was located. Thus, the Erlitou site, as the head of the most elaborately developed territorial hierarchy and inception point of the Shang bronze tradition, has been assumed by many to have been the Xia capital. Moreover, Erlitou territory also hosts an early Shang site, Yanshi, whose location is interpreted as representing the Shang conquest of Xia mentioned in the documents.¹

In the 1990s, a large project was mounted in China to “find the Xia” archaeologically, with the resulting identification of Erlitou as the Xia capital.² This designation is not wholly accepted, and many scholars still dispute whether the Xia was mythical or real, and if the latter, whether or not it can be equated with Erlitou.³ Moreover, the relationship between Erlitou and Yanshi is still to be defined.⁴ Nevertheless, we have seen in Chapter 8 that Erlitou is the first recognizable state organization on the China Mainland. Not only did its territory overlap with the subsequent Shang, but also its bronze and jade ritual system, ceramics, divination and palace/temple architecture continued into that of Shang.

Early, Middle and Late Shang

Shang peoples are known from historical texts to have moved their capital frequently, stimulating archaeologists to identify excavated cities by name as previous capitals. The earliest site bearing Early Shang bronzes (Erligang-style, see Chapter 8) is Yanshi, about 6km

Table 9.1 State capitals of Xia/Shang/Zhou Dynasties and their affiliated bronze styles

south = south of Yellow River in Central Plain;
north = north of Yellow River in North China Plain;
west = Wei River valley

east of Erlitou. Its construction was followed by a new walled site at Erligang in modern Zhengzhou City, 85km to the east. These sites belong to the Early Shang period (1600–1300 BC), with Zhengzhou counted as the capital named Bo on the basis of later Eastern Zhou ceramics stamped with the Bo character found at the site,⁵ and Yanshi is considered West Bo, named in the literature.⁶

Four phases comprise Early Shang, and it was in Phase 4 that a new walled site was built farther north near modern Anyang City. This site, Huanbei, was just discovered in 1999, miraculously escaping notice until then. Some scholars include it in Early Shang, while others put it and Erligang Phase 4 into a Middle Shang time period. Huanbei is geographically tangential to the Late Shang capital northwest of Anyang, occupied through four phases between 1250 and 1046 BC. This last Shang capital is referred to in the oracle bone inscriptions as the “Great Settlement Shang”, but it was apparently called Yin by the succeeding Zhou.⁷ Yinxu (meaning ‘Yin wastelands’)⁸ is commonly used in archaeological writings, as it will be here. Yinxu is famous for its caches of oracle bones with inscriptions that give insight into the structure of Late Shang society, ritual systems, and cosmology. At Yinxu, we enter East Asian protohistory.

Royal Zhou

In 1046 BC, the Zhou peoples swooped through the Huanghe Corridor from their capital in the Zhouyuan and conquered the Shang at their Yinxu capital. Though the Zhou were a different ethnic group from the Shang, they shared in the Shang bronze culture and interacted with the Shang on an equal if sometimes hostile basis before laying waste to Yinxu. The new Zhou king kept his dynastic capital in the Wei River valley while enfeoffing family members in lands across the Central Plain. The Zhou period lasted for some 850 years, undergoing several transformations. Regional polities that developed under the Royal Zhou umbrella became independent during Middle Zhou and began expansionist policies. The decline of Royal Zhou power is marked by a revolution in bronze vessel usage in the mid-9c BC, culminating in their ouster from the Zhouyuan in 770 BC, signifying the beginning of Middle Zhou.

Three problems confront us when examining the formation and structures of Erlitou, Shang and Royal Zhou states:

- assessing the contemporaneous and historically retrospective records,
- coordinating these records with the material cultures in the archaeological record,
- and distinguishing political boundaries from cultural boundaries.

As the foremost political cultures on the Mainland, these states were subject to much emulation, but the sharing of a material culture did not necessarily imply subjugation or incorporation into a political entity – as evidenced by pre-dynastic Zhou. The oracle bone inscriptions of Late Shang provide one key to understand the nature of state boundaries.

Early inscriptions

One of the most exciting and important archaeological detective stories of modern times involved the identification of protohistoric oracle bones in early 20th-century Chinese medicinal shops and the tracing of their source to Anyang.⁹ Their discovery led to the excavation of the Yinxu capital, and they give unprecedented insight into the structure and functioning of the Shang state – but only for Late Shang. Oracle bone inscriptions concerning hunting¹⁰ or military campaigns and receipt of tribute provide information on events and behaviors, complementing the archaeological remains at Yinxu, which reveal a full-fledged stratified society, urbanized living, and court culture with enormous class differences in wealth and status as seen in the great tombs and sacrificial burials.

Shang oracle bones continued the Late Neolithic tradition of divination but with some important differences: the bones used are limited almost exclusively to bovine scapulae or turtle plastrons (Figure 9.2) – no more deer, pigs or sheep. Also, they occur with inscriptions (see BOX 1.1-E), recalling the very early character-like engravings on turtle shells at Jiahu in the Early Neolithic (see BOX 1.1-A), though there is no direct connection. More than 200,000 Shang oracle bones have been found at Yinxu (Anyang), with 48,000 of the inscribed ones published.¹¹ Further examples have emerged recently from Zhengzhou, from the pre-dynastic Zhou capital of Qiyiⁱ and even Zhou oracle bones from Yinxu soon after their conquest of Shang.¹² The oracle bone script developed from inscribing pottery with signs and symbols (see BOX 1.1); most of these were incised, but some were written with a brush in vermilion at an Early Shang (Phase 3) site in Shandong.¹³

The bones themselves were carefully scraped down on the back side, and oval cavities about 1cm long were hollowed out in rows; a heated metal rod was inserted by the diviner into the cavities to produce cracks on the front surface following a ‘charge’ (question) put to him by the Shang king. The cracks (not to be confused with

ⁱ Alternatively called Qishan, located at the foot of Mt. Qi (Qishan) in modern Qishan county.

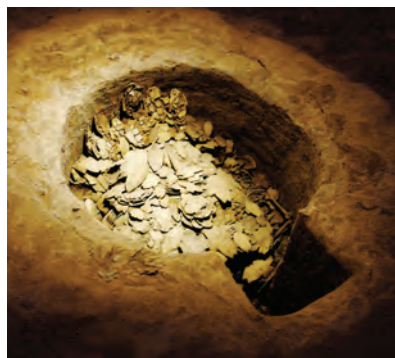
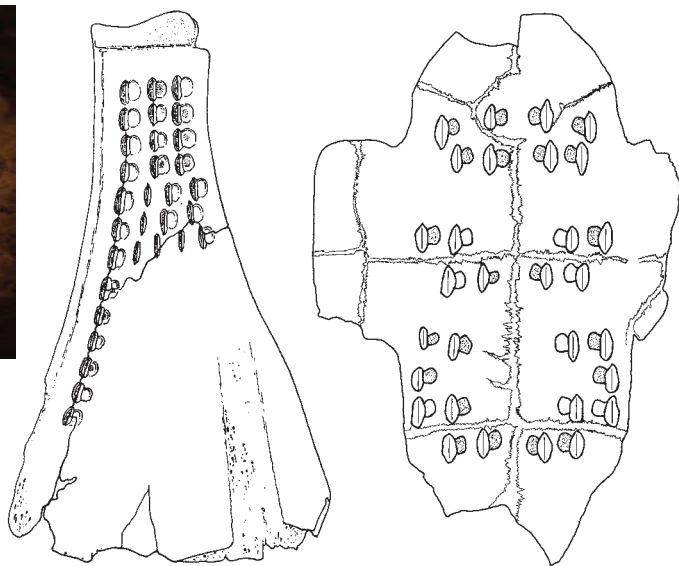


Figure 9.2 Shang oracle bones

Shang oracle 'bones' consist of bovine scapulae (middle) and turtle plastrons (right). The drilled holes on the back received a hot poker, producing cracks on the front. Specialists engraved a record of what was said, sometimes including the diviner's name, and the bones were often deposited in pits. The pit shown above contains mainly plastrons plus a human skeleton.



the plastron segment joints) were then 'read' by the diviner, providing the king with answers: Is it an auspicious day to go hunting? Will the harvest be good? The oracle bones themselves state that captured western Qiang peoples were often put to work processing the bones for divination – when not valued for their horsemanship or used as sacrificial victims.¹⁴

In Late Shang and Early Zhou, clan emblems and inscriptions on bronzes became an added source of information. Initially rather short, inscriptions were usually commemorative in nature, often referring to sacrifices or gifts and solidifying the relations among men, ancestors, and gods. These provide important insights into socio-political activities as well as being crucial mechanisms for dating other archaeological finds, especially in the Wei River valley where most Early Zhou bronze inscriptions occur.¹⁵

Shang state organization

Shang capitals

The Shang capitals all contained tamped-earth platforms and foundations for elite buildings; these were combined in diverse ways to form palace/temple complexes of various sizes within areas surrounded by compound walls or city walls. Over time, however, we can see an increase in capital size and complexity, along with increases in the number of people involved in urban activities (Table 9.2).

Unlike Erlitou, which was unwalled, the first Shang site of Yanshi

	dynasty	bronze phase	city area (bold = walled)	palaces/ temples	tombs	population maxima
Erlitou	Xia?	Erlitou	300ha	11 in 7.5ha	1 in palace area	18,000–30,000
Yanshi	E Shang	Erligang	80ha, 200ha	8 in 4ha	burials in city	?
Zhengzhou	E Shang (M Shang)	Erligang	300ha, 1800ha, 2500ha	20 in 300ha	small cemeteries	78,000–130,000
Huanbei	M Shang	transitional	470ha	174x90m		10,000
Yin	L Shang	Anyang	3000ha	1 in 3000ha	royal & lineage cemeteries	no plausible estimates

had double walls, first enclosing 80ha and then 200ha with an outer moat (Figure 9.3); these were constructed sequentially after the original palace compound of 4ha was founded as protection became necessary. Walls seemed unnecessary at first – rather undermining hypotheses that Yanshi was founded as a Shang site during the conquest of Xia (ostensibly at Erlitou). Unusual site features are the presence of a 4ha storage compound within the inner city wall near the palace compound, drainage facilities for the palace compound, and provision of a pond fed from the moat. The palace compound contained four buildings with walled courtyards, two unwallled long buildings, and two areas near the pond where human and animal bones have been recovered. These remains have been interpreted as sacrifices; thus, the Yanshi palace provides the first clear evidence of the sequestering of ritual activities within an elite area.

Like Yanshi before it, Zhengzhou is also a double-walled and moated site, with an inner city wall forming an asymmetrical rectangle enclosing 300ha (Figure 9.4); the outer moat has only recently been discovered, expanding enormously the urban area to 18km² and changing our perception of what activities occurred within as opposed to outside the city. Within the inner city, tamped-earth foundations for at least 20 palace or temple buildings have been excavated, along with some bronze hairpins suggesting the presence of elite women. This ‘city’ was identified early on as a ‘ceremonial center’.ⁱⁱ As at Yanshi, elite residences and ritual activities were effectively segregated from the masses, who were neither privy to, nor privileged to participate in, the esoteric rites of elite politics. Burials, in which the number of bronzes is correlated with grave pit size, are divided into three status groups: the ruling class, a middle class, and a lower class, though each of these can be divided again

Table 9.2 Comparison of Erlitou and Shang urban sites

All but Yanshi served as state capitals.

ⁱⁱ Wheatley (1971) used Zhengzhou for his theoretical construct of the ‘ceremonial center’ as the earliest form of urbanism in many state societies.

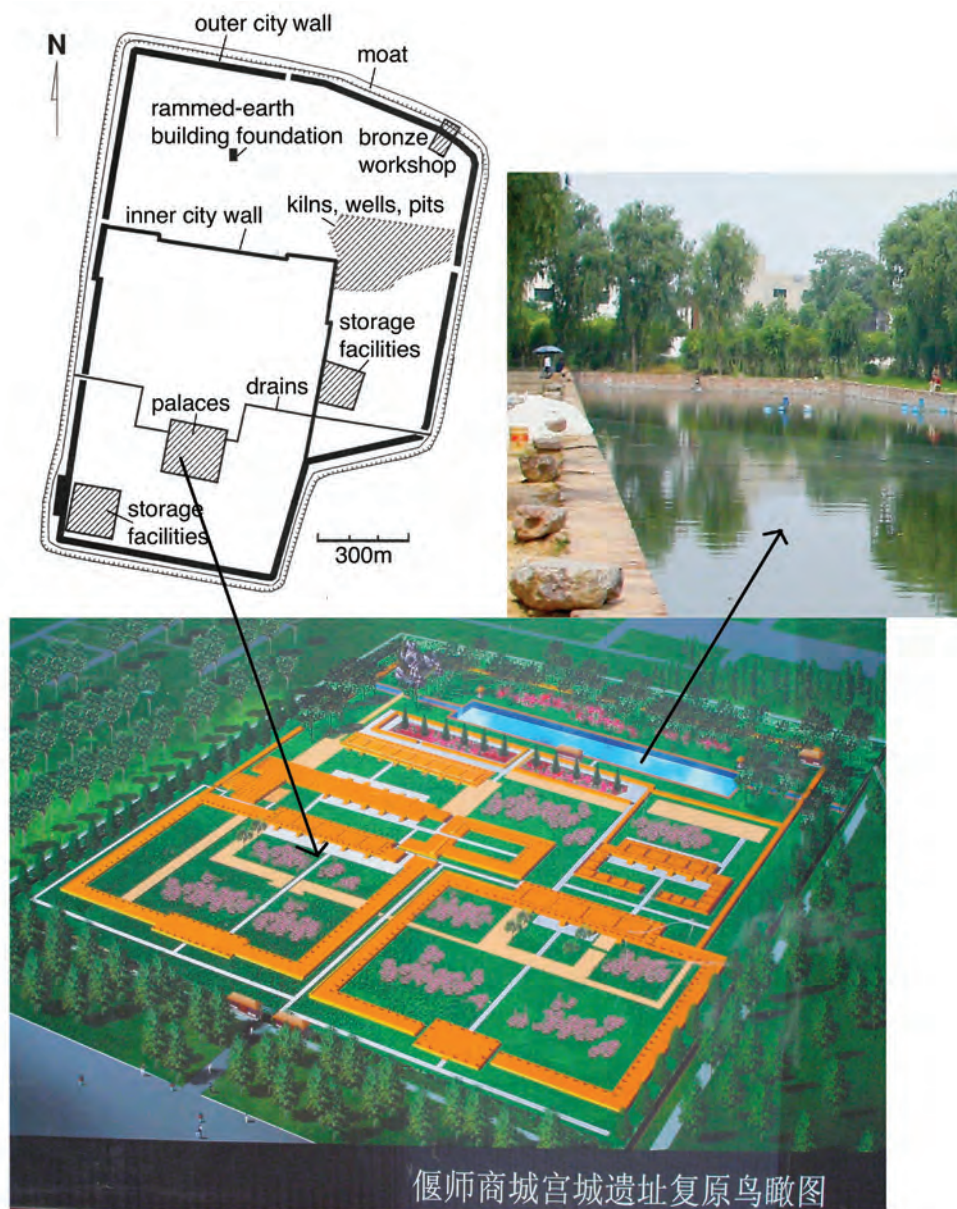
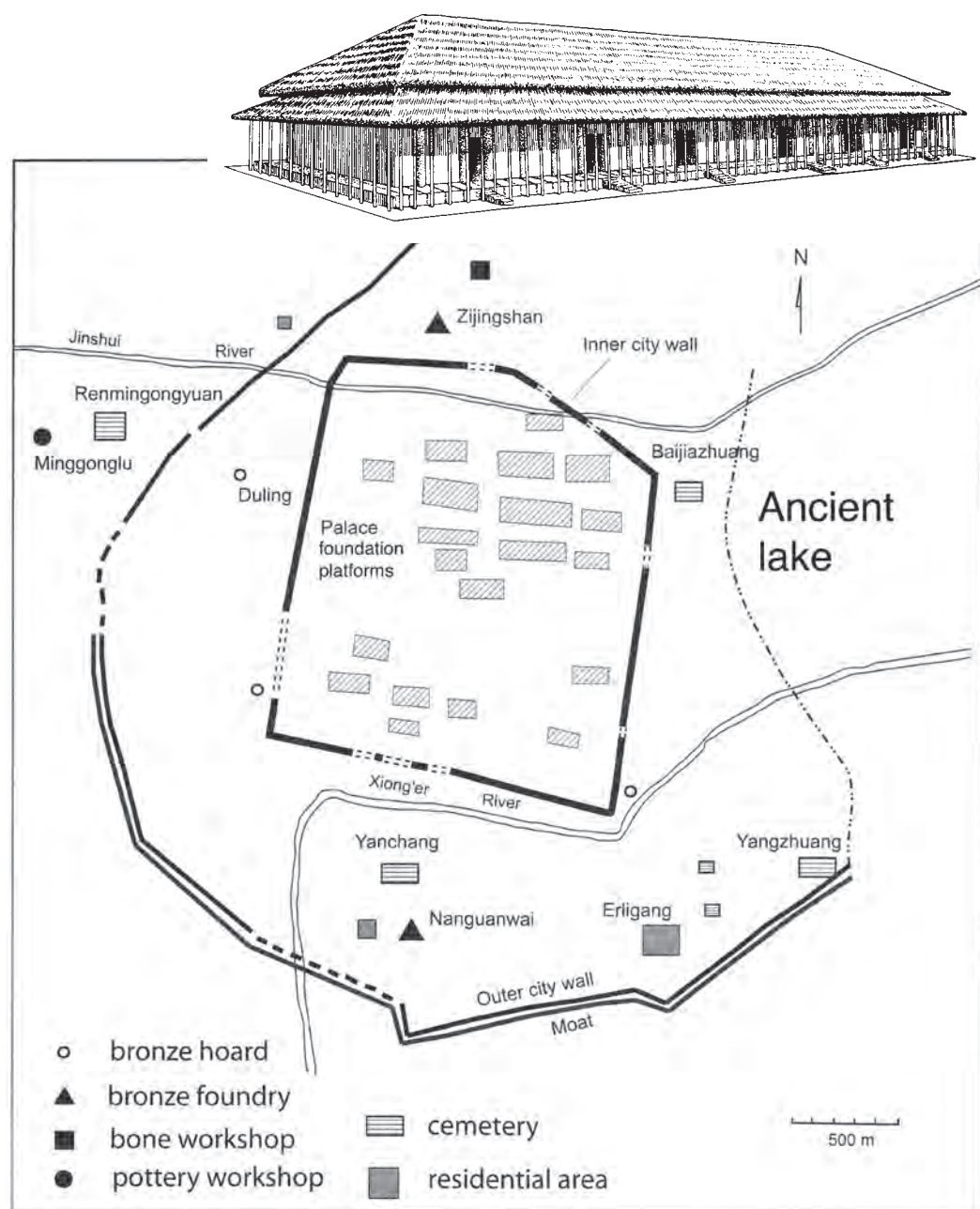


Figure 9.3 Yanshi walled city, attributed to Shang
Located on Erlitou's
doorstep (see Figure 8.3).

into sub-classes.¹⁶ Interestingly, tombs of any Early Shang 'kings' have not yet been identified.

The outer wall and moat were identified at Zhengzhou (Figure 9.4) in the 1990s,ⁱⁱⁱ partially encircling the originally known walled city and potentially enclosing 18km².¹⁷ Between the two walls were two bronze foundries, a bone workshop, and several cemeteries,

ⁱⁱⁱ This invalidates the comparison of Zhengzhou with Xiadu in CKJ fig. 64.



while another cemetery and pottery workshop lay beyond the outer wall.¹⁸ A ditch at the bone workshop containing human skulls – many with their crowns sawn off – hints at control over life even within the production process. No workshops for producing jade or ivory are known; these items must have been imported – from the south? Beyond the outer wall, Zhengzhou was surrounded by a

Figure 9.4 Zhengzhou and the newly identified circular outer city wall

Top: A reconstruction of the type of building erected on foundation platforms excavated inside the inner city.

settlement hierarchy of 40 sites spread over 40km², but by the end of Early Shang, the central site had outposts at Yanshi, Dongxiafeng, Panlongcheng and Huanbei.

Huanbei, founded in the latter half of the 14c BC,¹⁹ is located 160km north of Zhengzhou. It represents the shifting of the Shang center of gravity to northwest of the Yellow River, possibly reflecting the need to govern from the central point of Shang influence across the North China Plain.²⁰ Foundation platforms there supported two palace-temple compounds built with surrounding corridors; one platform held nine or more row houses, each accessed by separate staircases onto the platform. Unlike Zhengzhou, many sacrificial victims were incorporated into the foundations: humans as well as pig, sheep and other animals. The wall at Huanbei, planned to encompass 470ha (2.15 × 2.2km), was unfinished when the site was abandoned. Occupied for less than a century, the settlement was intentionally evacuated and set on fire,²¹ with the huge complex of Yinxu developing nearby instead (Figure 9.5). There is some evidence that residence at Yinxu began during or before the establishment of Huanbei and that Yinxu's layout was not planned as a whole but grew in stages to fit immediate needs.²² Could the elite occupation at Yinxu have been established by Huanbei refugees within an existing community?

The late great capital of Yinxu

The Late Shang capital at Yinxu is unwallled, its urban area covering 25km² across the Huan River. Several districts, named for the modern villages in the vicinity, are functionally distinct, for example: the palace-temple complex at Xiaotun, and the royal cemetery at Xibeigang. Aristocratic and commoner neighborhoods and cemeteries were organized by lineage. Industrial workshops for manufacturing bone objects and bronzes are scattered among residential areas. All of these features indicate a high population density; judging from pit-buildings containing non-local pottery, many of the residents had migrated in from surrounding regions.²³

The Xiaotun palace-temple complex was unwallled, nestled in a crook of the Huan River (Figure 9.6).²⁴ As pictured, a ditch has been identified partitioning off the complex, but scholars are yet unsure whether it was truly part of the site.²⁵ The building complex is comprised of four clusters of buildings on tamped-earth foundations, many containing sacrificed humans and animals; arranged from south to north, they supported the South Gate, the Great Hall flanked by the Eastern Hall and Hall of Ritual Vessels, another Hall, and a Temple at the northern end; beyond these were individual building

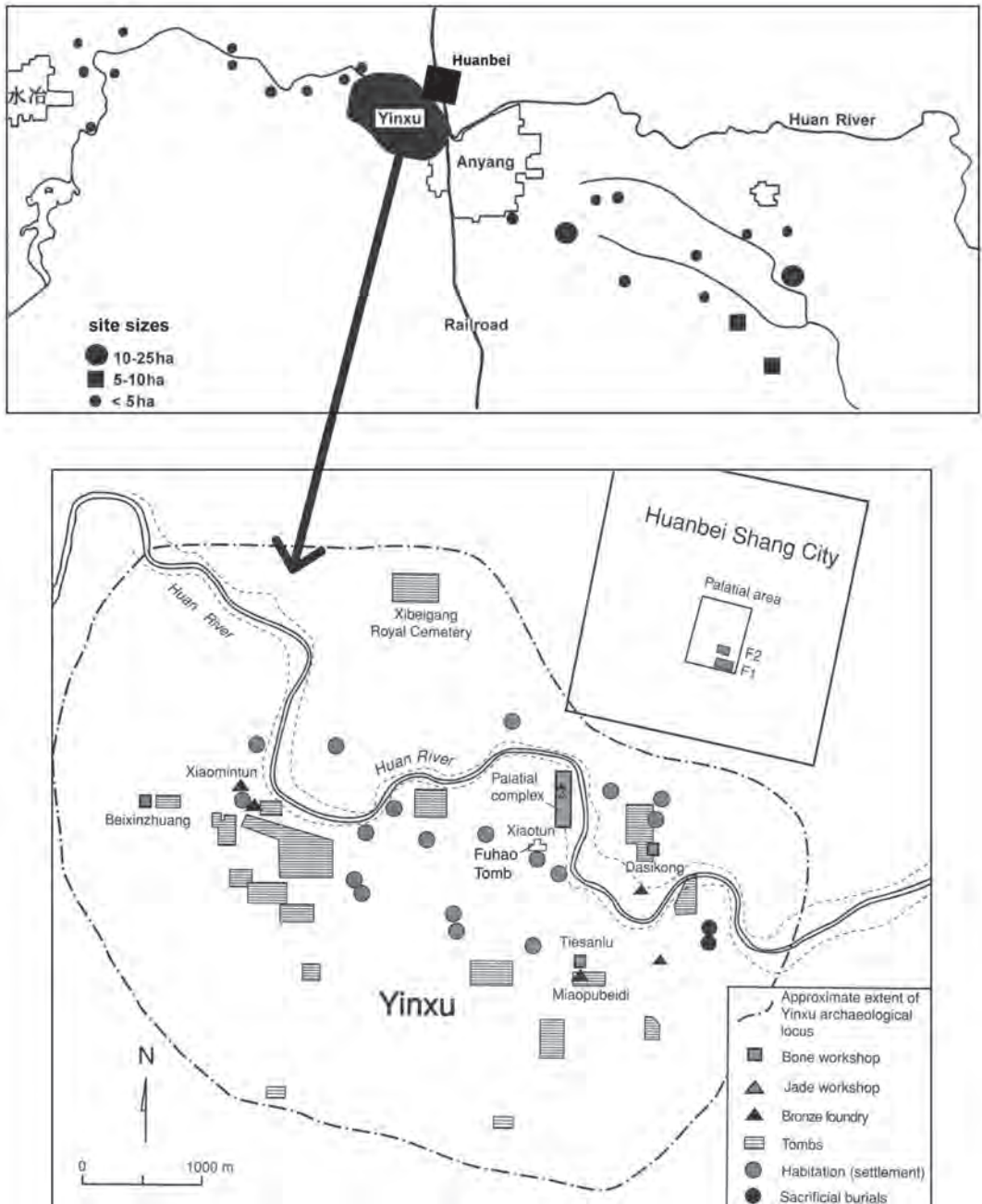


Figure 9.5 The newly discovered walled city of Huanbei and the unwalled city of Yinxu on the Huan River northwest of modern Anyang

Yinxu's urban nature is encapsulated in the diversity of functions at the site, which included workshops for manufacturing bone and bronze goods as well as residential areas for both commoners and elites.

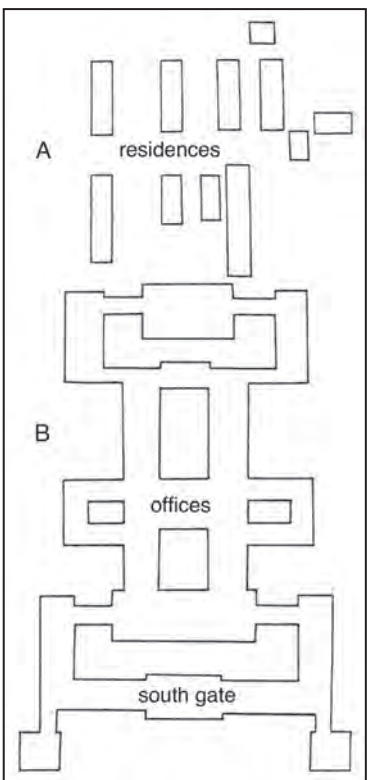
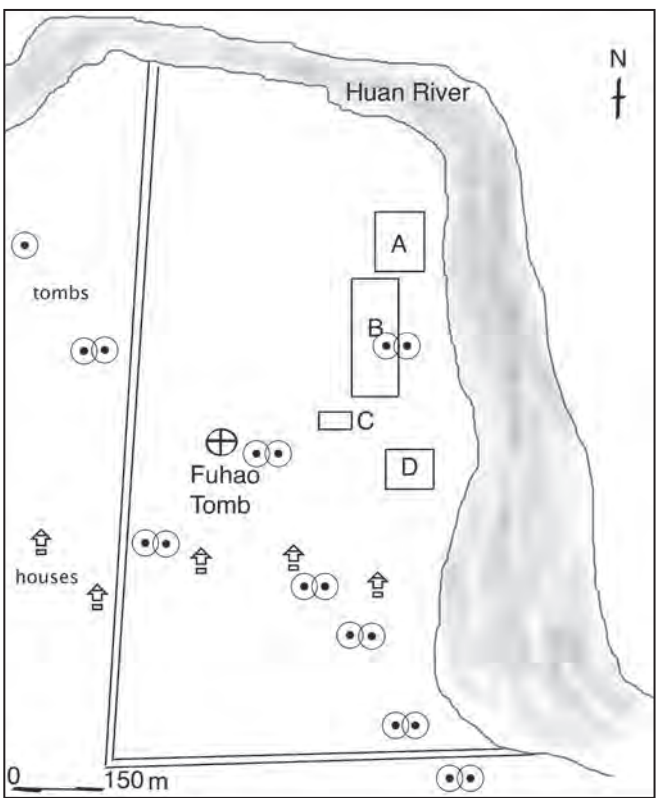


Figure 9.6 The Xiaotun palace-temple complex and Fuhao Tomb location at the Shang capital of Yinxu

Above left: an architectural reconstruction at Yinxu

Left: the palace-temple complex (demarcated by a ditch?). Building foundations in four areas are interpreted as A) residences, B) administrative offices, C) altars, and D) an ancestral temple. The Fuhao Tomb stands west of the complex in an area of other tombs and houses.

Above right: an idealized drawing of the temple and residential complex at A and B

foundations that may have supported elite residences. Between the Great Hall and South Gate stood two multi-story towers and two independent altars.²⁶ Pit-building remains, perhaps servants' quarters, stood between and among the building compounds across the site, and the Fuhao Tomb among several others stood nearby.^{iv}

Testimony of the exalted and powerful status of the Late Shang kings starting with Wu Ding is provided by the royal cemetery of shaft tombs and sacrificial burials near the village of Xibeigang. The excavated portion of the cemetery consists of a western section containing seven shaft tombs and a large rectangular pit, plus an eastern section with five more shaft tombs (Figure 9.7). The number of ramps leading into a tomb generally correlates with rank, the cruciform with four ramps being highest in status; the longest ramp was 31.4m and the deepest shaft was 12m, entailing a considerable amount of labor for construction. Across the eastern part of the Royal Cemetery are at least 2500 so-called 'slave' or sacrificial burials; these are aligned in regular rows and can be interpreted as sequential ritual burials preceding the construction of the shaft tombs.²⁷ Also buried in the Xibeigang cemetery were sacrificed monkeys, deer, horses and elephants.

The scale of wealth in the top-ranking tombs is so great as to be incomparable with the 'rich' burials of the Late Neolithic.²⁸ Most tombs have been looted over the centuries, but the Fuhao Tomb – located not in the cemetery but near the Xiaotun palace – was excavated intact, providing a glimpse into this world of wealth and power. Lady Hao was a secondary queen to King Wu Ding (Figure 9.8); her tomb yielded more than 468 ritual bronzes, 7000 cowrie shells, and 755 jade and 47 beadstone objects. Wu Ding's first queen, Lady Jing, was honored with burial in the Royal Cemetery in a single-ramp tomb. Despite being looted, it yielded more carved bone artifacts, more bone arrowheads, and more sacrificial victims than the Fuhao Tomb – all indicating her higher queenly status. A bronze square *ding* from Lady Jing's tomb is the largest Shang vessel known (see Figure 9.7).

King Wu Ding's reign coincides with several monumentalizing trends in Late Shang: the building of the great shaft tombs, the switch from the burial of human sacrifices in the small graves at Xibeigang to the interment of sacrificial victims to 'follow in death' in the tombs themselves, and digging the ditch around the palace-temple complex.²⁹ We also know of many non-material aspects of Shang rule because it was Wu Ding who began the practice of having the oracle bones inscribed.

^{iv} The Fuhao Tomb is shown in the wrong bend of the river in CKJ fig. 57.

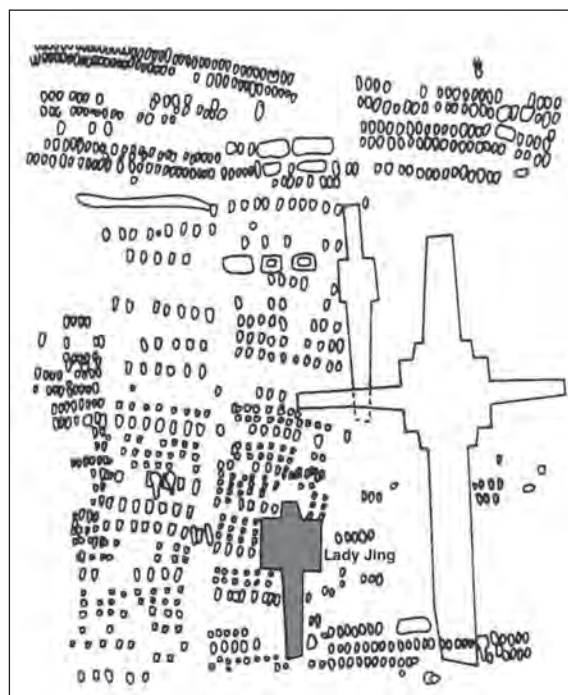


Figure 9.7 Shaft tombs at the Shang Cemetery at Xibeigang

Royal cruciform shaft tombs were juxtaposed with smaller sacrificial pit-burials (above).

Lady Jing's Tomb (above, grayed), a single-ramp tomb, yielded the Simuwu *fangding* (square ding), the largest Shang vessel known, weighing 875kg and standing 133cm tall (above, right).

Model of shaft tomb (right) with 'followers in death' laid out as skeletons on the ledges surrounding the burial chamber.

The shaft tomb 'double coffin' construction (not shown), an enlargement of the Longshan pattern, consisted of a coffin (often nested in later periods) placed inside a timber 'chamber'.

A small pit was often dug under the waist of the deceased; this 'waist pit' usually contained a sacrificed dog.





Territorial expansion

At the beginning of Shang, the Zhengzhou site hierarchy centered on the Huanghe Corridor, like Erlitou before it.³⁰ Erligang cultural attributes, however, are distributed from the Yellow River delta region into the Wei River valley, where the Zhou peoples arose, and to south of the Yangzi – a much broader reach than Erlitou. Nevertheless, Shang is not thought to be a ‘territorial state’; even in its latest manifestation, it is described as “a thin network of pathways and encampments along which the king moved or sent his commands...a league of towns allied by kinship or shared religious practice, towns which were dispersed amidst alien and hostile settlements”.³¹

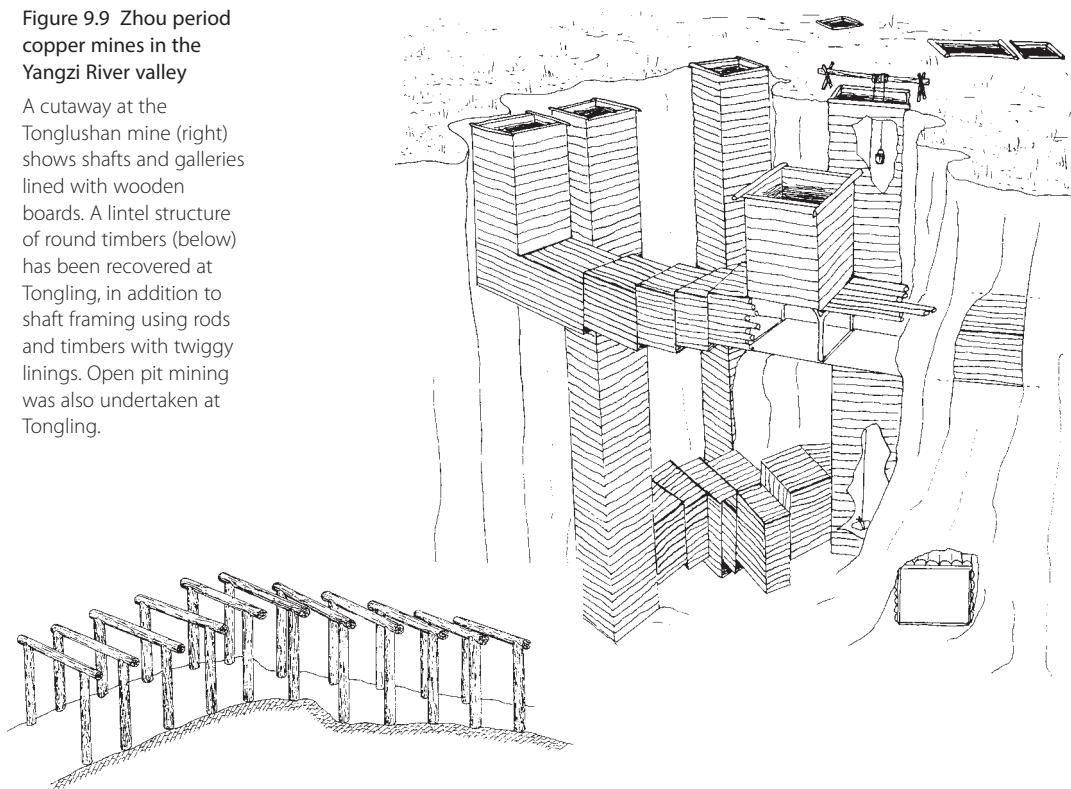
For resource extraction, the state based at Zhengzhou continued resource extraction at the Dongxiafeng and Nanguan sites in the Yencheng Basin – previously exploited by Erlitou for copper and salt; walled sites were newly established there to continue that trade and control the Huanghe Corridor gateway to the west.³² The Shang also followed Erlitou’s example and founded colonies at long distance; Daxinzhuang, established within the Yueshi culture region near the Shandong peninsula (see Table 1.2), was a crucial link to the seacoast for extracting coastal (salt) and marine products.³³ In the south, the walled site of Panlongcheng, established during Erlitou times on the northern edge of the Yangzi, continued serving as a procurement center for copper from mines just south of the river (Figure 9.9).³⁴ Together, Panlongcheng and Zhengzhou have yielded more than half of the Erligang-phase bronzes known; their vessel styles are virtually

Figure 9.8 Fuhao in modern reincarnation, standing in front of a reconstruction of her tomb’s altar temple, with ritual bronzes reproduced in stone

Many northern bronzes, such as these animal-head knives, and other objects were found in Fuhao’s tomb, leading scholars to propose that she was of northern ethnicity – perhaps representing a marriage alliance. She was renowned as a fierce warrior and battle commander.

Figure 9.9 Zhou period copper mines in the Yangzi River valley

A cutaway at the Tonglushan mine (right) shows shafts and galleries lined with wooden boards. A lintel structure of round timbers (below) has been recovered at Tongling, in addition to shaft framing using rods and timbers with twiggy linings. Open pit mining was also undertaken at Tongling.



identical,³⁵ indicating the close economic and social ties between these sites.

The presence of metropolitan Shang bronzes at Panlongcheng might have spurred the development of the Wucheng bronze culture, a hybrid outlier of the Shang bronze sphere as described in Chapter 8.³⁶ Similarly, the Daxinzhuang colony spurred acculturation of Shandong inhabitants.³⁷ Thus, the political economy seems to have been the motivating force of state elaboration and expansion, and the spread of Shang culture was accomplished as a by-product. In return, naturally glazed stoneware,^v a southern invention, was introduced into the Shang sphere via Panlongcheng (BOX 9.1).

The oracle bones of Late Shang give a different perspective on territorial relations, referring to surrounding groups in political rather than economic terms as 'hostile lords' or 'friendly lords'. The mapping out of these as bordering the Shang leaves a potential Late Shang territory extending across the Central Plain; within this, the capital of Yinxu sat at the northern end of a core territory where Anyang-phase material remains were particularly heavy, stretching 165km north/

^v It eventually led to a historic porcelain industry and therefore is usually referred to as 'proto-porcelain'.

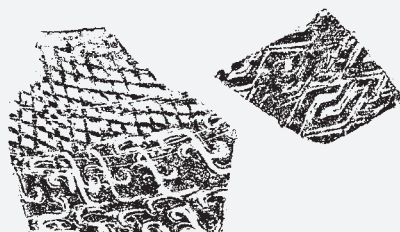
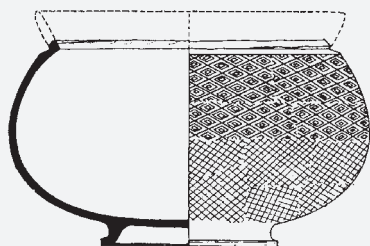
BOX 9.1 Whitewares, stonewares

In the Shang period, two types of ceramics from East Coast traditions appeared among elite prestige goods. Both were high-fired wares made of aluminum-based clays in contrast to the northwestern iron-based loess clays. The first type, a whiteware made of kaolin clay (right), represented the last gasp of a Late Neolithic tradition (until the much later development of porcelains); the other, the world's earliest glazed stoneware, developed out of the southern Neolithic stamped pottery tradition.

Prior to Shang, earthenwares were fired at temperatures below 1050°C, whether in bonfires or in kilns. At this maximum temperature, the type of clay (iron- or aluminum-based) is not important, but beyond this temperature, clays derived from loess will literally melt due to their high content of iron and earth metals, which act as a flux in lowering the melting temperature. In contrast, clays derived from weathered felsic igneous rocks were high in aluminum, low in iron, and had their earth metals leached out of them; high firing temperatures allowed the growth of a new aluminum-based mineral, mullite, whose needles hardened the clay bodies.

Kaolin occurs mainly in the southern Mainland but also in the north where it was deeply buried under loess, exposed only in outcrops. It was available to Late Dawenkou potters who created whitewares as well as blackwares; white wine vessels in the Longshan cultures inspired their replication in bronze at Erlitou (see BOX 8.2). Longshan varieties were tempered with sand, but the Shang varieties were almost pure kaolin. In its leather-hard state, it could be carved and burnished before firing, resulting in a ceramic as intricate and beautiful as the cast bronzes.

Glazed stonewares grew out of the southern Bronze Age stamped pottery tradition (below, from around Hong Kong). Fired in kilns with wood fuel, wood ash often settled on the vessels and fused onto the surface as an unintentional glaze; applied glaze followed as potters recognized the process. The clay body underneath is gray to buffish. The area around Wucheng has been identified as one production location for such ceramics, which were then exported northward to major Shang sites. In China, early stoneware is often termed 'proto-porcelain' and examined mainly with respect to its transformation into later porcelain. There is a continuum of body compositions between southern stonewares and porcelains, but the selection of less colored raw materials seems to have powered the change.



south between Anyang and Zhengzhou.³⁸ The broad and core areas respectively might equate to the textual division of the Late Shang territory into an inner ‘capital’ and an outer ‘domain’.³⁹ The outer boundaries were not fixed, however; political allegiances with or against the Shang could change through time, and many of the court diviners were members of some of the ‘enemy’ groups – indicating interactive relations despite apparent hostilities. Because of the northern bronze objects in her tomb, some researchers opine that Lady Hao herself may have been of northern ethnic affiliation and that her position as one of Wu Ding’s wives represented a marriage alliance with an outlying agro-pastoralist tribe.⁴⁰ Oracle bones identified her as an army commander who conquered many states and peoples. The Late Shang state was busy coping with northwestern enemies in the early phase, but in the later phase, the oracle bones indicate an attention shift toward the Shandong peninsula, where peoples subsequently known as the Dongyi (‘eastern barbarians’) lived.⁴¹ Warfare with surrounding hostile lords and peoples provided the Shang with prisoners, most of whom were used as forced labor and human sacrifices.

Political organization

Oracle bone inscriptions mention two units basic to Shang socio-political organization: town (*yi*) and kinship group (*zu*) (the latter commonly referred to as ‘lineage’ or ‘clan’). These inscriptions reveal more than 1000 town names. Any particular town is understood to have included people from more than one kinship group. Some towns were assigned to court officials, princes and royal consorts, becoming their power strongholds and perhaps providing for their economic well-being. Only one of the ruling clan’s lineages supplied the ‘kings’; this lineage was in turn divided into two groups, with kingship probably alternating between the two.⁴² Kings could have many wives and concubines, with certain ones of exalted status designated as queens and accorded luxurious burials as we have seen above for Ladies Jing and Hao.⁴³ The Shang kings “lay at the core of a vast kinship organization, based on actual and legendary blood relations and coupled with the state structure”.⁴⁴ ‘Lords’ were directly enfeoffed by the Shang king, owing grain and services in return.⁴⁵ This implies a highly personalized and semi-autonomous relationship between center and sub-center, an impression sharpened by the fact that the lords of neighboring towns could engage in armed conflict with each other.

The Shang state can thus be interpreted as entailing considerable organizational differences between the inner capital and outer domain, with the former centrally controlled through hierarchically

organized court officials and princes. The Yinxu capital was populated by a ‘hundred’ bureaucrats, with clan lineage heads serving as court officials; they administered political, civil and religious affairs – the latter including many diviners who conducted the annual ritual calendar involving sacrifices. Outer regions were ruled through fealties on a semi-autonomous basis, making the Shang a patrimonial state.⁴⁶ The king and his entourage made regular hunts, one of whose purposes was to “feed and clothe the court”, implying that taxation was not well developed.⁴⁷ The actual colonies and outposts established for economic activities, however, were extensions of the central state and were probably highly regulated as a result.

Royal Zhou and enfeoffments

Zhou in the Zhouyuan

The pre-dynastic capital of Zhou, Qiyi (the settlement of Qi), is located in modern Qishan County in what used to be called the Zhouyuan (Plain of Zhou)^{vi} (see Figure 9.1). Rulers in this area, named ‘friendly lords’ in the Shang oracle bones, participated in the same kind of bronze rituals that occurred at Yinxu, and many Shang bronzes are known from this region. This did not, however, prevent the Zhou from turning on the Shang to depose a despotic ruler, attacking Yinxu in 1045 BC and overthrowing the dynasty. This conquest brought 750 ‘states’ (*guo*) of the Shang period under Zhou hegemony.⁴⁸ The core Shang area itself was large enough to have been divided into three Zhou states, but the rest of the Shang population was variously assigned to feudal lords who could move them across the landscape; at least 71 of such ‘mobile’ states are known in which “the vassal states became units that managed population rather than land”.⁴⁹

The early dynastic Zhou retained the Zhouyuan as their base, establishing a new capital (*jing*) at the double city Hao-Feng.^{vii} In the Zhouyuan are scattered the remains of at least 5 palaces, 15 discovery caches of ritual bronzes, 11 known tombs and burial mounds, and 22 other settlement locations of pre-dynastic and early Royal Zhou.⁵⁰ A series of secondary capitals and cities stretched more than 500km through the Huanghe Corridor as far east as modern Luoyang, just west of the old Erlitou capital. Farther out, the Zhou established ‘colonies’ at major access points across the Central Plain (see Figure 9.1).⁵¹ These became important states in the Eastern Zhou period.

^{vi} Not to be confused with the Central Plain (Zhongyuan).

^{vii} Often referred to individually as Fengjing or Haojing, similar to modern Nanjing and Beijing.



Figure 9.10 Western Zhou bronzes

Clockwise: A *ding* for meat, *gui* for grains, a helmet from the state of Yan, and a bronze *zhong* bell. Bronze *nao* bells (see Figure 8.1) were a Shang invention; southern cultures turned them upside down to make *zhong* bells, and these were taken up with gusto in the Western Zhou reforms. The bells were struck in two places, producing two tones. Sized bells were later assembled into sets for tonal ritual music (see Figure 10.2).



Early Zhou bronzes carry on the Shang tradition with southern influence (Figure 9.10); they are often “flamboyant”, having “ferociously flanged” bodies and incorporating animal decoration in the round as we saw at Wucheng.⁵² Drinking vessels remained crucial to state rites in Early Zhou, but already by the mid-9c BC these had been banished from the ritual set, which thereafter consisted mainly of the food vessels *ding* (for meat) and *gui* (for grain). This is seen as a “revolution” or “reform” in ancestral rites, brought on by the need to control the growing Zhou aristocracy.⁵³ In addition to their use in sacrificial rituals, the bronze square *ding* becomes a regulated mark of rank: the king ruled by virtue of owning a prescribed number of

ding and *gui*, while lower ranks had fewer of each – interestingly, with the *ding* always present in odd numbers and the *gui* in even numbers, one less than the *ding* total.⁵⁴

Haojing was the center of kingly rituals until 771 BC, when Zhouyuan was overrun by western invaders called the Quanrong, pushing the royal house of Zhou eastward where they took up residence near modern Luoyang. The new capital became the economic and bureaucratic center of Middle (Spring & Autumn) Zhou. In the Middle Zhou period, the Royal Zhou gradually lost its power over the many regional polities, which began to operate as independent states (Chapter 10).

Early Zhou socio-political organization

The Royal Zhou initially continued the patrimonial state ritual structure of Shang, focusing on kinship links with the king but increasingly incorporating non-kin. The rise of ranked but non-hereditary administrators and officials challenged royal prerogatives such as the building of ancestral temples. Analysis of bronze hoards in Zhouyuan reveals that the Royal Zhou struggled to institute new sumptuary laws governing ritual and burial in the face of increasing proliferation of power; in particular, from 850 BC, the numbers of *ding*, *gui*, bronze bells and chime stones were prescribed according to rank.⁵⁵

Ranked burials occur within lineage cemeteries, suggesting that women were ranked separately from but parallel to their men, that lineages included high to low and even unranked individuals, and that ranking procedures varied from lineage to lineage.⁵⁶ Thus, lineage and clan organization became extremely important to the expanding managerial class and remained so throughout subsequent Chinese history.

The relations between Royal Zhou and its satellite states were patrimonial: lords were enfeoffed in outlying regions to protect the borders in heavily fortified walled cities, some of which, such as Yan discussed below, were newly built in areas not previously occupied. The Zhou king granted each new ruler a clan name, a local supporting population, a name for his colony, and all the “ritual paraphernalia and regalia befitting his new political status and that of his town”.⁵⁷ These rulers could raise armies and conduct sacrifices in their own ancestral temples.⁵⁸ Some bureaucratization of the territorial hierarchy began with 500-household groupings, as known from Early Zhou bronze inscriptions.

Yan – a royal enfeoffment

Yan⁵⁹ is a good example of a state that developed from a Royal Zhou enfeoffment. Located around modern Beijing, this area during the late Shang Dynasty hosted successors to the southern Lower Xiajiadian: the Zhangjiayuan and Weifeng cultures. After the Zhou conquest of Shang in 1045 BC, this area was awarded to the Duke of Shao, who sent his son to act as the first Marquis of Yan. The early Yan capital, southwest of modern Beijing, consisted of the Liulihe walled site and two cemeteries, while the middle Yan capital of Ji underlies Beijing itself. A late capital, Wuyang at Yi also southwest of Beijing, was built by the Yan King Zhao in 312 BC.

There is evidence that Shang descendants as well as Zhou peoples initially occupied this fief – known archaeologically by Shang-style chariot burials, dog immolations in waist pits, and ritual bronzes bearing Shang clan emblems. Burials, cooking vessels, and Northern Complex bronzes also indicate the continuing presence of the local Zhangjiayuan peoples, forming the majority of Yan state subjects. Typically for a border region colonized from a state center, the mixing of indigenous peoples with the Shang/Zhou arrivals led to a distinct hybrid culture and regional political interests. These characterized Yan throughout its existence and differentiated it from the central Zhou states.

Early Zhou architectural contributions

The remains of the pre-dynastic Qiyi/Qishan capital of Zhou, contemporaneous with Yinxu, reveal the beginnings of two very important aspects of subsequent elite architecture in East Asia: the use of ceramic and of stone.^{viii} All Shang buildings were constructed of perishable materials, with wooden pillars and thatched roofs. Only the tamped-earth foundations manifested their ‘monumentality’. Recent analysis of buildings at Qiyi reveals one Shang temple among several of Zhou construction.⁶⁰ The latter had thatched roofs capped by semi-cylindrical tiles along the ridge poles; by Late Zhou, the roofs of elite buildings were fully tiled.⁶¹ Fired bricks were also an invention of Early Zhou. It seems they were initially affixed to the face of tamped-earth foundations,⁶² but in the Han period, they came to be utilized for building burial chambers in earth-mounded tombs. Stones were first used in elite architecture as pillar footings or for drainage. At Qiyi, pebble-paved areas around the foundation

^{viii} If the tiles discovered at Taosi are really Longshan in date (Zhai, S. 2012), this Western Zhou contribution might have to be re-evaluated. Note the geographical proximity of Taosi and the Zhouyuan.

platforms served to catch and drain off water. In Early Zhou, pillars were often footed on cobble pavements to provide a firm foundation; this practice was later augmented by the provision of a single large foundation stone as a pillar base.

The discovery of tamped-earth platforms, roof tiles, or fired bricks at an archaeological site is thus irrefutable evidence of elite presence, whether the structures in question were residences, temples, state halls or tombs. The monumentality of protohistoric and historic architecture characterized by these features, from the Zhou period onward in East Asia, is also indicated archaeologically by auxiliary components such as stone footings and pavements.

Urban development is also evidenced in Zhou. Chengzhou, an Early Zhou secondary capital, was built as a double-walled site like Zhengzhou before it. The inner city was designated a *wangcheng*, the king's fortress, while the outer city *guo* enclosed a residential area for aristocrats and soldiers.⁶³ Wangcheng also was employed as a Late Zhou name for the Luoyi capital. The use of *guo* varied through time from the Shang usage, where it designated enemy states (*fangguo*) in oracle bone inscriptions. Nevertheless, *guo* survives today as a referent for a state with a walled palace, as in Zhongguo ('central kingdom', i.e., The People's Republic of China and the Forbidden City in Beijing).

Sacrifice and warfare

Sacrifice at altar and tomb

"No theory of Chinese statehood could ever be proposed without reference to sacrifice and sacrificial ideology."⁶⁴ Oracle bones tell us that Shang sacrifices were made to the god Shang Di (the 'High Lord'), numerous other gods, deities and spirits, and to the ancestors of the kings. These two lines of worship of gods and ancestors melded when the Shang king came to be considered the descendant of Shang Di. Thereafter, a king made sacrifices not on behalf of the people to a god, but as a descendant of the god to his ancestors. The ability to sacrifice to Shang Di thus became both the definer and legitimizer of royal status.

Three types of Shang sacrificial practice can be distinguished: sacrifices made and buried at a temple precinct; immolations within tombs – where many members of the deceased's household were made to accompany him or her in death; and sacrificial victims buried in Xibeigang cemetery where small graves of the victims cover the eastern sector (see Figure 9.7). These small graves include both decapitated males buried north-south, and whole female and

child skeletons buried east-west,⁶⁵ indicating a different status and sacrificial purpose. The practice of human sacrifice is thought to have diminished toward the end of the Shang Dynasty because few remains have been found at Early Zhou palace sites; but recent excavations of Early and Middle Zhou have illustrated that burial sacrifices did still occur,⁶⁶ often comprising a service retinue to follow the lord in death. Early Zhou bronzes used in ceremonies were often inscribed with passages detailing for and by whom a sacrifice was given and in commemoration of what event.

Of horses and chariots

Chariot burials at Yinxu as well as bronze weaponry attest to the importation of this new transport technology from the steppe region of Eurasia (Figure 9.11). Though the chariot had been invented

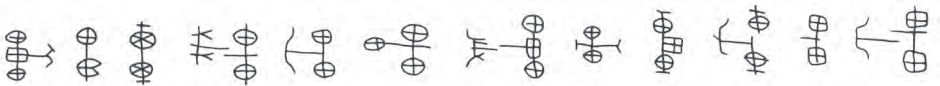
Figure 9.11 Chariots in war and death

Precise ghosts of organic materials in the loess, as at Anyang (top), allow reconstruction of moving parts.



For example, the excavated horse team and chariot are thought to have looked like the reconstruction on the far right.

Characters for 'chariot' in oracle bone inscriptions (below) show yokes, axles, wheels and carriages.



in the Sintashta culture on the eastern foothills of the Urals (see Figure 7.8), it took almost a millennium to work its way across the steppes. The Ordos (within the Great Bend of the Yellow River) has yielded numerous artifacts related to chariotry: bronze buttons for bridle fittings, bronze rein hooks, and chariot fittings.⁶⁷ With its high incidence of horse fauna as well, scholars believe this area might have been the immediate source of the horse and chariot appearing in Late Shang burials. Oracle bones mention the chariot being used for the hunt, and burials of splendidly outfitted chariots, complete with horses in harness in pits at the mouths of the shaft tombs at Anyang, suggest that they also functioned as royal prestige items. When used in battle during the Late Shang and Early Zhou periods, they seem to have functioned as mobile command stations and are cited as possibly having been the crucial factor in the Zhou conquest of the Shang.⁶⁸

Shang warfare engaged the many surrounding peoples labeled as *fang* in the oracle bones. Many battles were fought to bring home prisoners of war destined to be sacrificial victims. By Early Zhou, the value of such prisoners was reckoned more in economic terms, and many were put to work in various industries including agriculture.⁶⁹

Early state overview

It has been said that Shang state formation on the China Mainland was heavily indebted to western innovations: bronze metallurgy, and the horse and chariot. Nonetheless, the creation of a new casting technology and putting bronze vessels to use in indigenously developed ritual systems was what gave power to the emergent elite – not the presence of the metal itself. As for horse and chariot, it is as yet unclear how widely they were used in warfare or for capturing sacrificial victims, though they were certainly important status symbols in sumptuous burial rites. The advent of horse and chariot, together with Northern Complex bronzes, at Anyang suggests that northern connections enhanced the ruling house enormously, judging by the spectacular displays of wealth, ritual and sacrifice in the large tombs built from King Wu Ding's time onward.

Multiple sources of Shang culture, like Erlitou culture before it, have been documented by researchers, portraying a centripetal confluence of elements, drawn into the Anyang area. The fact that the Zhou people participated in the Anyang-focused ritual system and continued the basic rites after deposing the last Shang king speaks for the continuation of this early state into the 1m BC. It is only with the rising autonomy of the various Zhou dependencies from Middle Zhou onward that we have multiple existing, and competing,

states to deal with. These cannot be dealt with individually in an introductory work such as this, but many Zhou states contributed elements to the eventual formulation of a distinctive East Asian cultural umbrella. Chapter 10 visits some of these states as they interact with each other and with their border peoples.

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Chapter 10

Eastern Zhou and Its Frontiers

(1st millennium BC)

The Eastern Zhou appellation subsumes the Middle Zhou (Spring & Autumn) and Late Zhou (Warring States) periods. As such, is a convenient framework for examining developments among the Zhou states in the 1m BC (Figure 10.1) and their various relations with surrounding neighbors. While the central Zhou states continued the aristocratic practices of Western Zhou in modified forms, the borderland states were busy developing their own cultures. Those of Qi, Chu, Qin and Jin will be examined below.

The mid-1m BC witnessed the rise of warfare both between Zhou states and with horse-riding peoples on the northern borders. Walls were built to protect territories, and methods of fighting were adapted to counter the horse-rider threat. Identities of the northern peoples began to appear in written histories, but it is very difficult to equate a material culture with an ethnic group. Nevertheless, much discussion of the archaeology of this period is couched in ethnic terms.

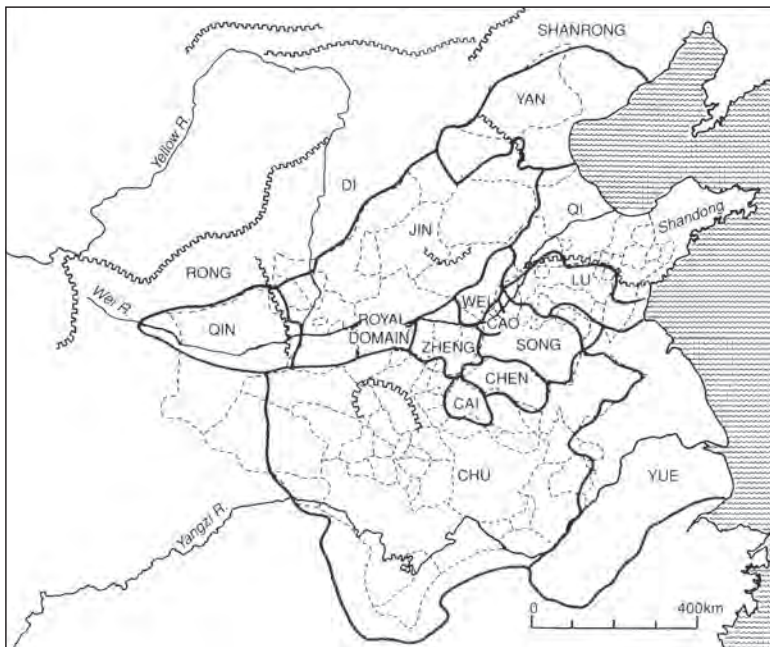


Figure 10.1 Major Middle Zhou states and Late Zhou defensive walls

The many small states (dashed outlines) that paid homage to the Royal Zhou in the Early Zhou period were soon consolidated into a few large states (solid outlines) in Middle Zhou. The state of Lu, just south of the Shandong peninsula, was the home of Confucius. Extant walls include the Wei wall built of sun-dried brick, the Qi wall of stone or pounded earth in different locales, the Han circular wall, the Zhongshan wall, the Yan wall (334–311 BC), and the Zhao wall (333–307 BC). In Late Zhou (not shown), seven large states contended for power: Yan, Zhao, Qin, Chu, Qi, Han and Wei.

Individual sites or locations mentioned in the text can be approximately located by which state they occur in.

Eastern Zhou (771–221 BC)

State autonomy

After the move of Royal Zhou to their eastern capital of Luoyi (modern Luoyang) in 771 BC, the various Zhou states gained confidence in their growing independence.ⁱ Rituals, using bronze vessels, that sustained the centralized power of Royal Zhou were replaced by rituals in individual states whereby nobles appealed to their own ancestors. Texts indicate that altar sacrifices continued to provide a major source of power for the individual Zhou states, and indeed for individual lineages; warfare was conducted in the service of their ancestors. Zhou warfare, hunting, and sacrifice were integrally linked:¹

These activities, symbolically linked through the ceremonial exchange and consumption of meat, reached their common culmination in the offering up of living beings at the altars. Thus the noble was above all a warrior and sacrificer, a man who took life in order to feed the spirits who gave him power.

Nevertheless, steady erosion of aristocratic power eventually led to rule by hereditary nobles being compromised by professional administrators.² A large cache of inked stone ‘covenant tablets’ from early 5c BC Jin (see BOX 1.1-G), documenting alliances between the ruling clan and county or city officials, reveals the aristocratic need for sworn support.³ Rituals surrounding the sealing of covenants came to replace ancestral cults and undermine kinship ties.⁴ The rise of individuals by merit is exemplified by Confucius (Kong Fuzi,ⁱⁱ 551–479 BC), who was born to a military officer in the state of Lu.⁵ Though a member of the gentry, he grew up in modest circumstances but reached prominence by developing his own political philosophy; he argued vociferously against the practice of human sacrifice.

Despite the apparent solidity conveyed by Figure 10.1, the organization of Middle Zhou states was extremely fragmented.⁶ Most were comprised of self-sufficient small city-states (*guo*) ranging downward from 50 × 50km, each consisting of a walled city (from 4km² to 8–9km²) and agricultural hinterland. Public buildings and palaces were raised on tamped earth foundations, but thatched pit-houses were de rigueur for commoners and some elite. Service groups included “those who worked in orchards or gardens, stable hands, wood gatherers, herdsmen, menials, and ...seamstresses.”⁷

Some of the larger states included several walled cities, but these were not administratively hierarchical; instead the cities either acted

ⁱ Individual states are described to some extent in Li, X. 1985.

ⁱⁱ Fuzi means “Master”; his personal name was Qiu, thus, KONG Qiu.

autonomously and often in conflict with each other as aristocrats in charge vied for *primus inter pares* dominance, or they were “leagues of semi-independent city-states feebly bound together through ties of kinship or patronage”.⁸ What held all Middle Zhou territory together was a cultural model prescribed by the central Zhou court (though not all complied): cities with a partitioned government or ritual area; court music based on bell and chime sets (Confucius declared that good government required good music) (Figure 10.2); ritual offerings of food and wine in bronze containers; and a common language and literary heritage.⁹

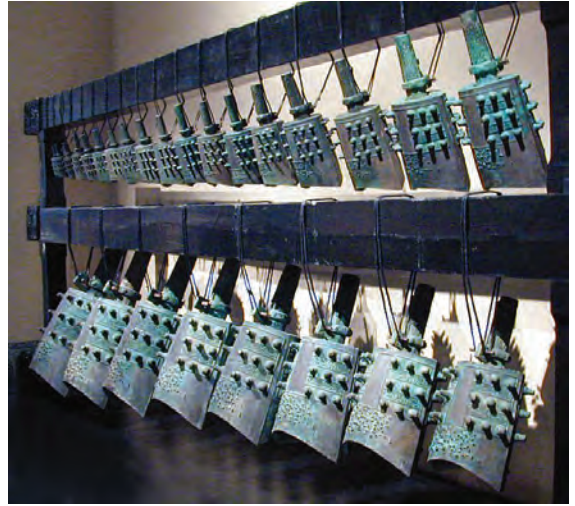


Figure 10.2 Zhou *zhong*-bells on a reconstructed rack

Often found in the tombs of Zhou nobility, they were used in ritual ceremonies confirming the status of the elite.

Nevertheless, important tools for territorial governance were devised in Middle Zhou. Chu is thought to have invented the *xian* 縣,¹⁰ an administrative unit to which a central official was assigned, thus taking power away from the local aristocracy. The Qin state was divided into *xian*, useful for military recruitment. The Jin state, by contrast, established commanderies (郡 *jun*) in conquered areas;¹¹ the latter were then subdivided into *xian*, presaging the historic system of nested territorial administration in East Asia.ⁱⁱⁱ

Warfare tactics

While Middle Zhou was characterized by territorial expansion and consolidation, warfare between Late Zhou states became endemic. Long walls arose as buffers between states and along frontier borders. Mainland societies had long experience in building walls to embrace their settlements; this technology was extended to long-wall construction as early as the 7th century BC.¹² Many were of tamped-earth construction, though often drawing on other local materials: in desert areas, layers of tamarisk branches and reeds strengthened walls made of sandy soil.¹³ Wall-building was a response to increasing internecine warfare among the Middle Zhou states, and remains of walls separating those competing states survive today in central China.

Chariot warfare was initially the major means of competition among the Zhou states, though it had a short lifespan. Infantry armies

ⁱⁱⁱ Modern Japan shows an interesting inversion of these characters, with prefectures designated 県 *ken* and counties 郡 *gun*.

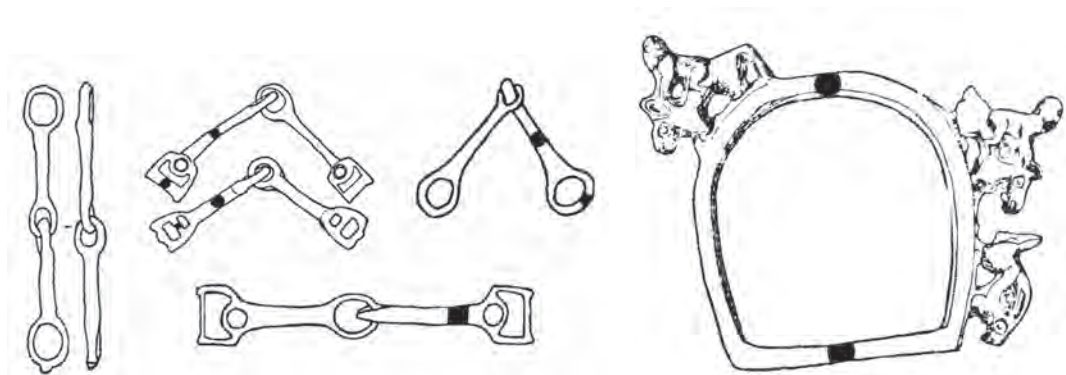


Figure 10.3 Archaeological evidence of horse-riding among Northern Zone peoples in the early 1m BC

Jointed snaffle bits of bronze (left) can be used to either ride or drive a horse. The tiny (5cm tall) bronze ring (right) clearly sports horse-riders, one chasing a hare.

took the lead after the mid-6th century BC, with the chariot serving only as a mobile battle station and eventually being transformed into a sumptuous two-wheeled carriage for the nobility.

The creation of infantry armies constituted a major advance in state organization during Late Zhou. Such armies were an innovation that undercut the status and authority of the old aristocracy, which had defined itself in terms of its exclusive prerogative to wage war in service of the state. Moreover, their formation was integrally related to the development of taxation methods and land grants, since all of these features required the state's direct control over the peasantry.¹⁴ One stimulus for the shift from reliance on charioteers to mass infantry was the need to combat increasingly hostile groups in mountainous border areas who fought entirely on foot.¹⁵ A different challenge was posed by horse-riding peoples (Figure 10.3) in the grasslands who turned their hunting excursions into mounted raids. The adoption of mounted warfare by northern Zhou states represented a self-protective response to incursions by mounted peoples living in proximity to the northern states; such incursions increased through the Late Zhou period.

Zhou and 'non-Zhou' identity formation

During the Shang period, as attested by oracle bone inscriptions, the Shang identified peoples on their peripheries as friendly or hostile. Each geographical entity was given a specific name, which is at variance with the tendency in the Zhou period to refer to peoples in their entirety according to direction: the Man in the south, Yi in the east, Di and Rong in the west and northwest – though these designations encompassed smaller named groupings such as the White Di or the Qiang Rong. These various ethnonyms are useful to an extent but should not color independent assessments of cultural remains known from archaeology.



Figure 10.4 Modern autonomous regions in China (grayed areas)

Named provinces in N, W and S have great numbers of ethnic minorities even today. Circled area of China is shown below in Figure 10.5.

Even today, the provinces across the north and in the south and southwest are composed of many ethnic autonomous districts established by the People's Republic of China (Figure 10.4). It is clear that the central state is still grappling with the difficulties of multicultural and multi-ethnic integration under one political system, especially in Xinjiang and Tibet.

From huaxia to Han

States whose kings were related to Royal Zhou (such as Yan) were considered 'true Zhou' states, while others were considered by later historians as barbarian, 'non-Zhou' (such as Zhongshan). This retrospective classification depended on the development in Middle Zhou of a '*huaxia*' identity as 'civilized aristocrats' – as opposed to peripheral peoples – a concept that was later shifted to the 'Han' identity of central Chineseness.¹⁶ Today, the translation of any of these peripherals as 'barbarian' is discouraged, primarily because of its discriminatory note but not least because it lumps together various peoples who very much had their own identities, lifestyles, and relations with the central states. It also overlooks the external origins of several of the Shang and Zhou entities.

Peripheral origins

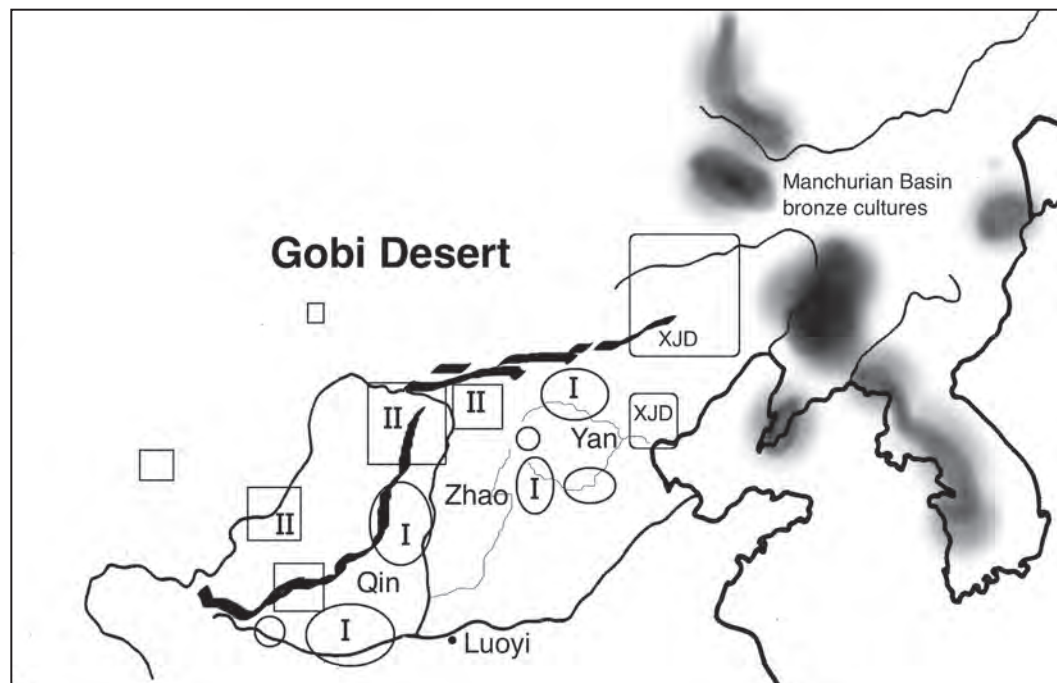
Figure 10.5
Archaeological
remains assigned to
ethnic groups on the
northwestern Zhou
borders

Distribution of North-Central Type I (rounded) and Type II (square) bronze locales in relation to the walls (black ribbons) of the Zhou states of Yan, Zhao and Qin. Two locations of Xiajiadian (XJD) culture are shown: the southern, Lower XJD, location became absorbed in Yan culture, but the northern location developed as the major eastern bronze culture of the Northern Zone, Upper XJD. Other bronze cultures of the Manchurian Basin and Korean Peninsula are depicted in gray.

The stories told us by inscriptions and texts indicate very complicated and ever-changing relationships that belie the later distinction between Zhou and non-Zhou (Figure 10.5). The Royal Zhou themselves are interpreted to have originally been a western people (the Ji) who absorbed many Jiang and Qiang (Rong).¹⁷

They moved from the foothills bordering the northern Wei River valley to establish themselves in the Zhouyuan. The Zhou overthrew the Shang with the help of the Qiang, and then in 771 BC were driven out of the Zhouyuan themselves by the Xianyun (Rong), whose homeland spread across the upper Great Bend of the Yellow River and who could “field hundreds of war chariots in a single battle against the Zhou”.¹⁸

The Qin, located in the western intermontane valley of the Wei River, were commissioned by the Zhou king in 851 BC to rout the Xianyun from the Wei River valley, driving many of these ‘warlike foreigners’ north. One group, the White Di, established the Zhou state of Zhongshan and were known to have “one thousand chariots”.¹⁹ Foreign elements in the Zhou, Qin and Zhongshan demonstrate not only the ability to acculturate to Shang/Zhou customs and organization but also the capacity to interact in both peaceful and hostile manners with the central states.



Zhou border states

The Middle Zhou period witnessed the expansion of the large border states in all directions. The state most responsible for spreading Zhou culture throughout the southern Mainland was Chu. Qin and Jin, plus Yan (introduced in Chapter 9), were instrumental in warding off unwanted attentions of northern and western pastoralists. Qi, through expansion and consolidation, became a hegemon and leader among Zhou states. These border states had mixed populations deriving from Zhou aristocrats and local tribal peoples.

The eastern state of Qi

As noted in Chapter 9, the Shandong peninsula became acculturated to Shang through its eastern colonies, but Shang was never able to conquer the entire region. After the Zhou Conquest in 1045 BC, a Zhou colony was set up in Qi with the enfeoffment of a Qiang ally to Zhou.²⁰ Qi absorbed several surrounding peoples of Di, Rong and Yi designation and conquered more small states in the area. Conspicuous consumption of horses marked the burial of one lord of Qi: more than 600 horse carcasses were interred in pits around the main chamber.²¹ Attempts by Qi to expand southward led to the neighboring state of Lu building a long wall against it. Around 667 BC, Qi was named hegemon by the powerless Zhou king, and it maintained the balance of power among Zhou states for two centuries.²² During that time, rules of diplomacy, hierarchy, protocol and even warfare were developed.²³ Qi was on track to become an empire,²⁴ as with Qin and Chu, but lost the race when conquered by Qin in 221 BC. Nevertheless the Qiang themselves, occupying the area west of the Zhouyuan, became a formidable force in the Han Dynasty.

After 500 BC Qi's state coins, shaped like curved knives (see 'Cash economy' below), spread into the north-central Mainland, representing the expansion of Qi's fishing and salt-making trade. From Late Zhou into the Han period, Qi territory was "the demographic and economic center of the empire".²⁵

The southern state of Chu

Because of its unusual material culture and multi-ethnic population, Chu is often labeled a 'barbarian' Zhou state. Indeed, some objects link to local cults and rituals (Figure 10.6). But Chu was founded by a member of a Zhou lineage, with its capital located within 100km of Royal Zhou, and became a serious rival to the central



Figure 10.6 A Chu tomb guardian

Made of carved and lacquered wood with real deer antlers attached.

Zhou polities.²⁶ It was conquered in 223 BC during Qin unification but was resurrected under Han as a kingdom.

Recent scholarship on Chu has placed it in the forefront of administrative and technological change, as well as an important colonizer of the south. The bamboo slip texts from Chu (see BOX 1.1-H) give insight to legal affairs and tomb preparations, while a silk manuscript remarkably preserved from *ca.* 300 BC is the earliest almanac recovered.²⁷

The Chu homeland was likely located just 100km south of the Yellow River in the Dan River valley where remains of elite tombs might represent the early Danyang capital. After the Zhou capital was moved eastward and royal power declined, Chu embarked on territorial expansion, moving its capital in 690 BC southward to Ying on the Han River. From there Chu conquered or incorporated many surrounding smaller states and peoples, expanded north into the Nanyang Basin and pushed across the Huai River valley to the east coast, resulting in a tug-of-war over territory with other Zhou states. Despite the

lack of textual evidence that Chu was active south of the Yangzi,²⁸ archaeology reveals as many Chu burials near the modern city of Changsha as in the Chu homeland.²⁹

In the south, Chu played a major role in developing economic relations with the Wu-Yue on the southeastern coast, and the southern Yue peoples. At stake were precious sources of gold, silk, pearls, kingfisher feathers, fish, tortoises, salt, copper, iron, cinnabar, lacquer, tea, honey, aromatic and medicinal plants, and fragrant barks and resins.³⁰ Several trade routes developed at this time paved the way for Qin and Han armies to later incorporate the southern regions into their empires.

Because Chu territory incorporated so many different peoples and traditions, it is difficult to define any particular 'Chu culture' – which in any case would have changed over the millennium of Chu's existence. By the end of Middle Zhou, tomb structures, bronze vessel sets and inscriptional styles indicate the development of a regional elite sub-culture distinct from central Zhou.³¹ These are evident at the Xiasi burials, where bronzes were decorated with ornate flanges, beastly appendages, and intricate three-dimensional designs

– facilitated by soldering or cast-in parts – while inlays of copper, turquoise and lacquer made their debut. Features incorporated from eastern areas included certain ceramic vessels and the use of clay to seal coffins. In Late Zhou, bronzes were superseded by lacquerware or ceramic vessels painted in red and black with designs replicating bronze decorations. Contrasting with the elite sub-culture, regional cultures in Chu territories drew on their indigenous traditions as well as imitating elite practices.

The art of Chu is receiving much attention as a transition between traditional bronze culture of Shang/Zhou and the later silk and lacquer tradition of Han.³² Contrasting two tombs highlights this distinction. The tomb of the Marquis Yi of Zeng (d. 433 BC) already partook of a new trend in Chu tombs by being divided into functionally different rooms replicating a dwelling and focusing on earthly pleasures rather than strict burial rituals. But in other ways, it continued the Shang traditions of bronzes and sacrifice: it contained several hundred bronze vessels, 65 bronze bells in a set (see Figure 10.2), weapons and accessories, and 18 sacrificed females (possibly musicians).³³ In contrast, the Lady of Mashan Tomb (*ca.* 300 BC) was furnished with more than 30 embroidered and patterned silk garments and textiles, 25 objects of woven bamboo, and 30 lacquered wood objects but no bronze whatsoever. The emphasis on materials other than bronze was carried over into pseudo-sacrifices: later Chu led the way in replacing humans with wooden statues, a practice taken up more generally in the Han Dynasty.³⁴

Qin to the west

The origins of the Qin ruling lineage are historically disputed,³⁵ but texts praise the Qin, who “for generations acted as Zhou protectors”³⁶ – not only occupying the old Zhouyuan but guarding the western approaches into the central Mainland. They led campaigns against western agro-pastoralists, building a long wall to protect the western frontier. Their territory encompassed many local peoples from whom the state probably earned its epitaph ‘barbarian’.

Minute analyses of archaeological remains track Qin’s gradual consolidation and expansion.³⁷ Dating to the Late Shang and Early Zhou, the earliest Qin sites occur in the mountains west of the Wei River basin; these already exhibited cultural characteristics similar to mainstream Zhou, who then occupied the Zhouyuan. By the midpoint of Middle Zhou, a distinct Qin culture had evolved and spread throughout the Wei River basin following its evacuation by Royal Zhou. The main Qin characteristics in burials were flexed bodies oriented east/west accompanied by stone tablets in vertical

burial sites	Qin	non-Qin
Maojiaping late Middle into Late Zhou	vertical pits infants in vessels in pits	adults buried separate from children? infants covered with sherds and mounded earth
Dengjiaya late Middle into Late Zhou	[usually flexed in Qin but not specified here]	supine 2 w/ coarse bronze vessels, 5 w/ ceramic copies of bronzes
Ta'erpo Late Zhou through Qin	vertical shaft tombs, chamber 'catacomb' tombs, facing 4 cardinal directions, supine & flexed, 1 w/ bronze ritual vessels, 197 that can be ranked, having ceramic copies of bronzes, utilitarian ceramics, and ceramic imitations (mingqi) with workshop marks	

Table 10.1 Burial analysis of Qin and non-Qin cultural remains in the Wei River valley



Figure 10.7 A bronze seal bearing the character for 'storehouse'

A Qin seal (top), excavated from the 'bronze-caster's tomb' near the Qin capital of Xianyang, has an engraved character for 'storehouse' on the bottom that indicates administrative control of production.

pit or catacomb tombs.³⁸ Both Zhou and western tribal elements were incorporated at this time, and the capital was established within the basin. From the latter Middle through Late Zhou, two cultural assemblages are apparent in the basin's remains: a Qin and a non-Qin group. They co-existed in the same settlements, the latter adopting Qin grave goods but maintaining their own burial structure, as seen at Dengjiaya (Table 10.1). By the end of Late Zhou, the cemeteries are mixed with a variety of burial styles (as at Ta'erpo), suggesting residential-based identity rather than kinship.³⁹

Qin was the first to actualize the Late Zhou tendency to focus the state on a single monarch and his court at the capital, while defining state extent by territorial boundaries rather than networks of cities governed by aristocrats.⁴⁰ Through reforms attributed to Shang Yang in 356 BC,^{iv} Qin began to abolish the aristocracy and rituals based on bronze vessels, instituted a meritocratic ranking system, and established a bureaucratic state that brought every peasant under its control through citizen registration, land allocation, agricultural and craft production control, taxation, and a five-household organization for surveillance and recruitment for the military and public projects.⁴¹ This was probably the first truly bureaucratic state in East Asia, with up to four levels of control in decision-making, for example, demanding four signatures (seal stamps) to allow the issuing of grain consigned to storehouses (Figure 10.7).⁴²

Jin in the northwest

Jin was another state created by enfeoffment in Early Zhou, but it became a powerful hegemon in early Middle Zhou. Its capitals were located in the Fen River valley – the old Taosi homeland. Incorporating many border peoples into its domain, Jin expanded

^{iv} Often referred to as Lord Shang, d. 338 BC.

as far north as Yan but then divided itself into three smaller states, one of them named Zhao (see Figure 10.5), as ministerial families became over-powerful.⁴³ The late Jin capital at Xintian (around Houma village) was an industrial center, with ceramic kilns, bronze foundries, and workshops for bone and stone objects. The mid-1m BC cemetery at Shangmacun has yielded many richly furnished graves, such as #13 with 180 bronze vessels and some of the earliest ring-handled bells with curved bases. An extraordinary find was the field of animal pit burials: sheep, cattle and horses sacrificed and buried in pits with jade tablets bearing oath-of-allegiance inscriptions placed on top of the carcasses. The oaths (see BOX 1.1-G) swore not to “engage in black magic to harm the house master” or not to be “involved with the group of people headed by Zhao Hu”.⁴⁴ The sacrifices sealed the oaths in ceremonies solemnly undertaken.

During Jin’s heyday, bronze foundries at Houma produced many articles to trade to the northwestern border peoples. Some of these were wrapped in gold foil, while the casting technique was also applied to solid gold ornaments.⁴⁵

Commercial endeavors

Bronzes: deteriorations and advances

By the end of Early Zhou, a new collection of vessel shapes, some modeled on contemporaneous ceramics, were standardized and continued relatively unchanged for the next half millennium.⁴⁶ In terms of decoration, the *taotie* continued but either “dissolved” into a triple band of repeated scroll, quill, and spiral ornament, with only the eyes remaining predominant, or was “dismembered” into parts that served only as decoration.⁴⁷ Angular vessel forms gradually dropped out of the repertoire, and continuous panels of decoration flowed around the vessel. “Ribbioned” crested or plumed birds, dragons – and ultimately waves overriding the panels – replaced the banded *taotie* design. In the mid-1m BC, bronze vessels were replaced in Qin among the lower ranks by replicas and miniatures (*mingqi*) in clay.⁴⁸

Middle Zhou witnessed a tremendous geographical proliferation of bronze styles and decorations as the growing elite classes across the Mainland claimed eligibility to conduct ancestral rites and employ secular decoration (Figure 10.8). Examples are inlay involving both gold and silver as well as colored stones; patterns of interlacing forms; casting openwork often in a two-layered structure; and multiple-mold production of parts to be welded together.⁴⁹ These were widely used by Chu state elite in the southern Mainland, who commissioned

“monumental and flamboyantly decorated vessels”.⁵⁰ in contrast to the refined “sculptural decoration and pictorial themes” of Jin state bronzes of the Houma foundry preferred by “nomadic patrons”.⁵¹ Many kinds of objects were cast in bronze; mirrors had finely executed designs on their backs, contrasting with the Northern Zone coarse, angular geometrics (see Figure 8.1). Forms literally branch out into sculptures of trees, human figures, and incense burners – forms which, together with mirrors, carried on into Han.



Figure 10.8 Ornate Eastern Zhou bronzes

A shaft grip inlaid with silver, and two Late Zhou mirrors with finely cast decoration on their backs, one with interlaced dragons as on the grip, the other with the character for ‘mountain’ 山 repeated several times, making a star pattern. The reverse sides of the mirrors are clear reflective surfaces. A cord laced through the central knob on the back allowed it to be held for viewing. At bottom is an extraordinarily complex bronze altar surrounded by bronze beasts rearing up to oversee the ritual.



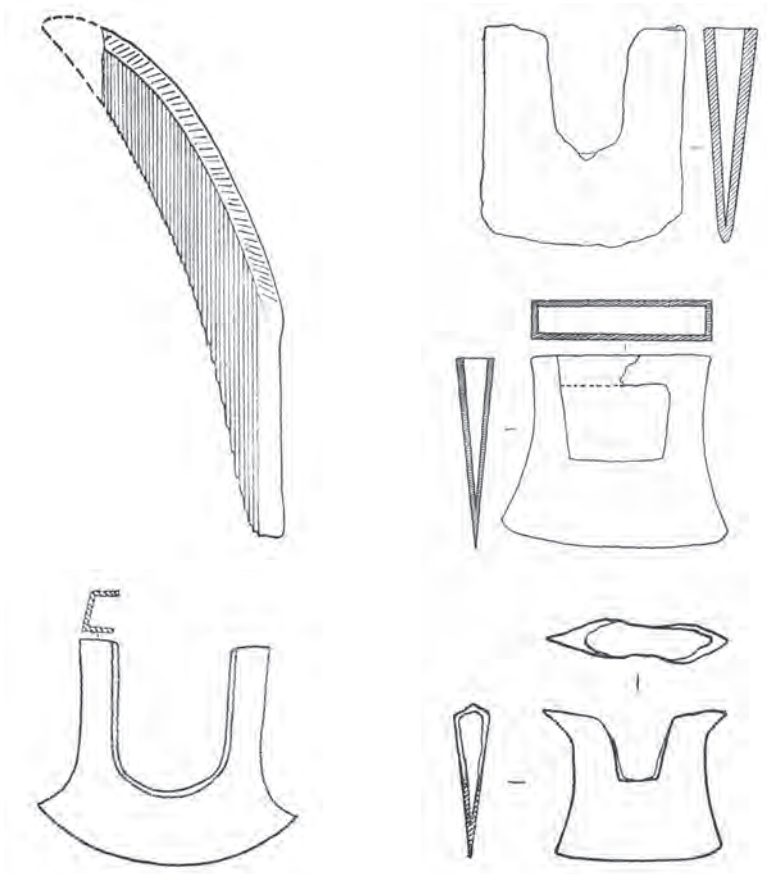


Figure 10.9 Southern Zhou bronze agricultural implements

A serrated sickle to be hafted onto a wooden handle, and several spade/hoe shoes. Cross sections of the latter show different approaches to shaping the socket.

A different ethos of bronze-casting developed in the south, where bronze was used for agricultural implements – anathema to the northerners, who used this valued ‘beautiful metal’ primarily for ritual and prestige items. The socketed ax mold technology was converted into making bronze ‘shoes’ for wooden implements such as spades and hoes (Figure 10.9).

One area of controversy concerning bronze technology has recently been resolved. Eastern Zhou bronzes are so intricate that they have previously been thought to be lost-wax castings (e.g., the altar in Figure 10.8). However, intensive examination by The Research Group on the Technology of Bronze Casting with Piece-Moulds revealed mold lines and welding traces on these flamboyant bronzes. Their verdict is that the lost-wax process was not used for the complicated Zhou bronzes.⁵² Nevertheless, other authors claim lost-wax casting for southwestern Sanxingdui bronzes in Late Shang, concomitant with its appearance in the steppe region,⁵³ and the indirect method of lost-wax/lost-textile casting of metal ‘steppe-style’ plaques is

documented for the Late Zhou-period Qin state.^v Both Qin and Jin were involved in producing objects for use by pastoralist peoples, indicating the pastoralists' involvement in commercial transactions rather than just 'raids'.

Iron: the beginning of an industry

The major technological advance during the Middle Zhou period was the development of ironworking. The first use of iron on the China Mainland was the rare hot-hammering of meteoritic iron into blades as parts of Shang and Early Zhou bronze implements (Figure 10.10-A,B); this was augmented by the diffusion of iron smelting know-how from western regions^{vi} between 10c and 8c BC – following the same routes as copper smelting a millennium earlier.⁵⁴ The earliest smelted iron would have been produced in small bloomery furnaces^{vii} of a type widely used across western Eurasia, though no bloomeries have yet been found on the Mainland. The product would have been low-carbon iron 'blooms' (BOX 10.1), easily forged into usable shapes. A 9–8c BC bronze halberd with turquoise inlay and iron blade from the Huanghe Corridor (Figure 10.10-C) attests to bloomery iron being produced by this time in the central Mainland.

The indigenous development of cast-iron followed soon thereafter,^{viii} with two pieces of cast-iron dating to the 8c BC recovered from the northwestern state of Jin.⁵⁵ Since flowing cast-iron can inadvertently be produced in a bloomery, solidifying into unusable shapes, it takes an extra step to re-melt the lump in a cupola furnace in order to pour it into a mold.⁵⁶ Several types of 'iron-melting furnaces' at two Late Zhou foundries have been reconstructed with integral ceramic blast pipes (see BOX 10.1), leading to the invention of the blast furnace. Iron foundries apparently came to be located on large-scale 'iron plantations' as known in early America and Sweden, positioned in remote areas to take advantage of the forest resources necessary to produce sufficient quantities of charcoal.⁵⁷

Thus, current knowledge states that wrought iron was present from the 9c BC followed quickly by cast-iron from the 8c BC. Wrought iron and steel were widely used for weapons, while cast-iron agricultural tools (similar to those made of bronze, see Figure 10.9) were widespread in the southern states of Wu and Chu by the early

^v Textile impressions can be seen in Linduff 2009: fig. 5.

^{vi} D. Wagner (2008) no longer thinks that Wu in the south-central Mainland was the locus of independent origins of smelting technology as presented in CKJ: 151.

^{vii} The blast furnace was not adopted in the West until the 13c AD, all earlier iron having been produced in bloomeries.

^{viii} Cast-iron is hyphenated here to indicate carbon content rather than shape formation.

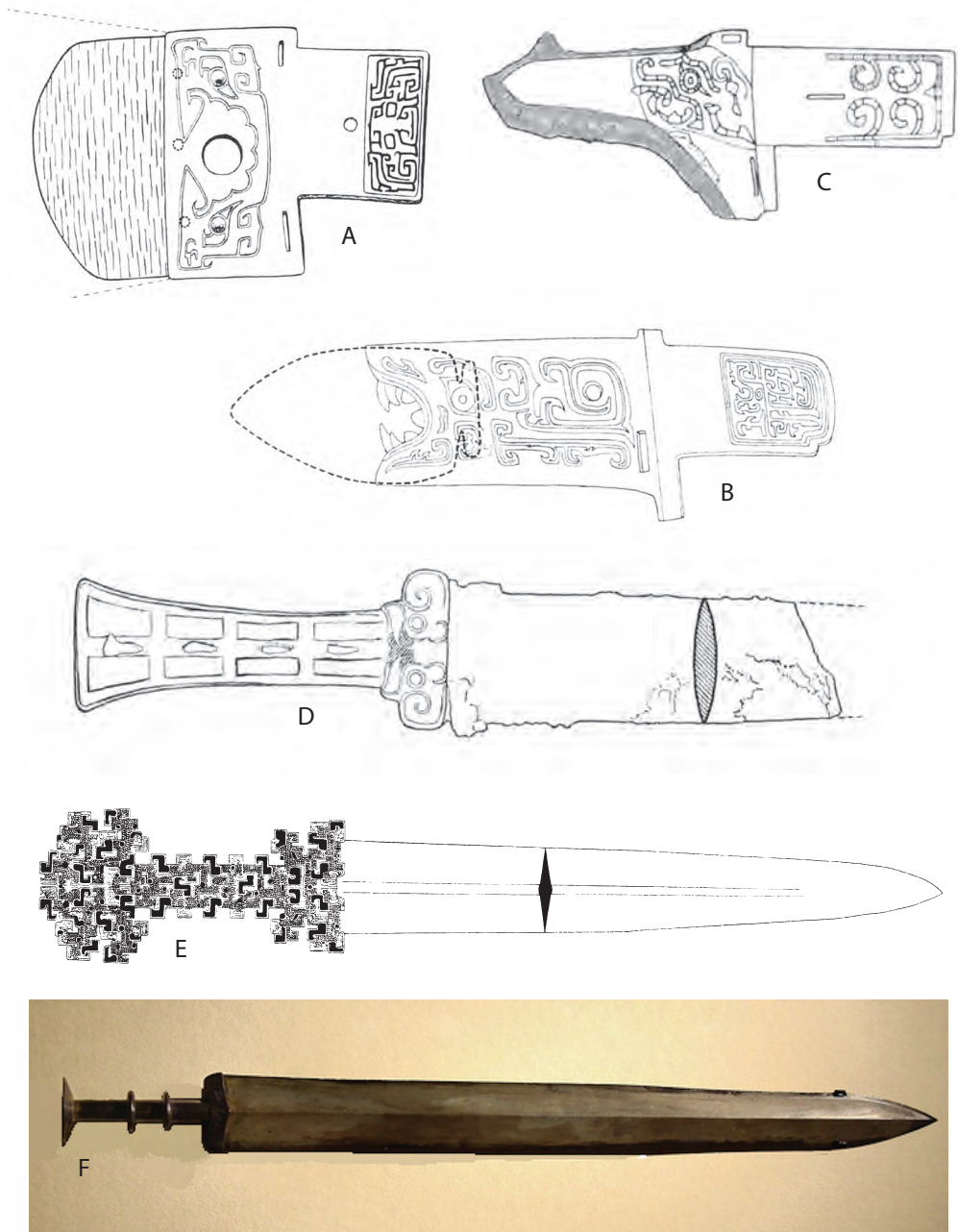


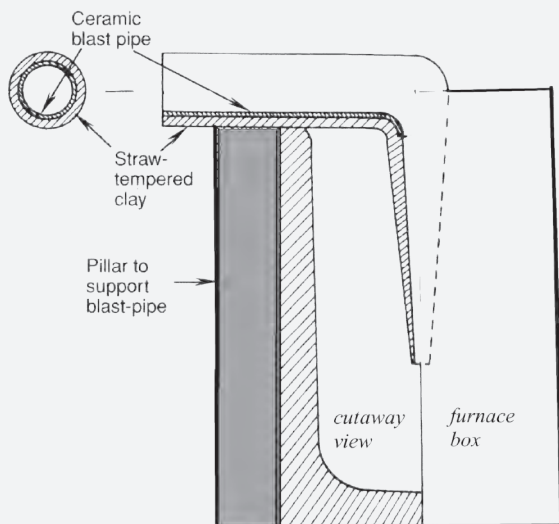
Figure 10.10 Zhou weaponry

The Early Zhou ax (A) and halberd (B) have inset meteoritic iron blades, but (C)'s blade is of bloomery iron. Three double-edged bronze swords: one with a perforated bronze hilt and iron blade (D); one with an iron blade hafted into an ornately cast gold hilt with turquoise inlay (E); and a straight Zhou bronze sword with ringed hilt (F), in great stylistic contrast to the stabbing sword (dagger) of the Northern Zone (see Figure 11.2).

BOX 10.1 Iron metallurgy

Iron is often categorized by the layperson as either 'wrought' or 'cast' when speaking about how the metal was shaped into implements. In ferrous metallurgy, however, these terms apply to the smelting process and indicate carbon content: wrought iron virtually lacking carbon ($C = <0.1\%$) and therefore very malleable and capable of being forged into shape, and cast iron being high in carbon ($C = >2\%$) and thus quite brittle and shattering when hammered. Steel ($C = 0.1\text{--}2.0\%$) is a medium-carbon iron. All three can be produced in a bloomery furnace, but only low-carbon iron is immediately ready for forging. Cast-iron and wrought iron can be transformed into each other by adding or subtracting carbon (carburization and decarburization).

One crucial factor is the melting point of iron ($1535^{\circ}\text{C} / 2795^{\circ}\text{F}$), which governs whether the smelted iron is molten or spongy. Wrought iron produced in a bloomery furnace is a spongy mass (a bloom) ready to be hammered. Smelted cast-iron, however, is a melt (pig iron) produced in a high-temperature blast furnace – so called because a blast of air is pumped in to intensify combustion. This melt can be poured into molds directly, taking the shape of objects (e.g. knives) or ingots (pigs). High-temperature furnaces, forerunners of the Han-period blast furnaces (Chapter 12), are known from Late Zhou; the reconstruction below has walls 15cm thick made of two layers of straw-tempered clay and lined with clay heavily tempered with sand. The production of pig iron facilitated the mass production of objects by casting into multiple molds, whereas items made of wrought iron need to be individually forged by hand.



The products of either bloomeries or blast furnaces can be transformed by further processing: cast-iron can be made more workable with heating or can be decarburized into wrought iron; adding carbon to wrought iron can turn it into steel or even cast-iron. Decarburized cast-iron is often called malleable cast-iron.

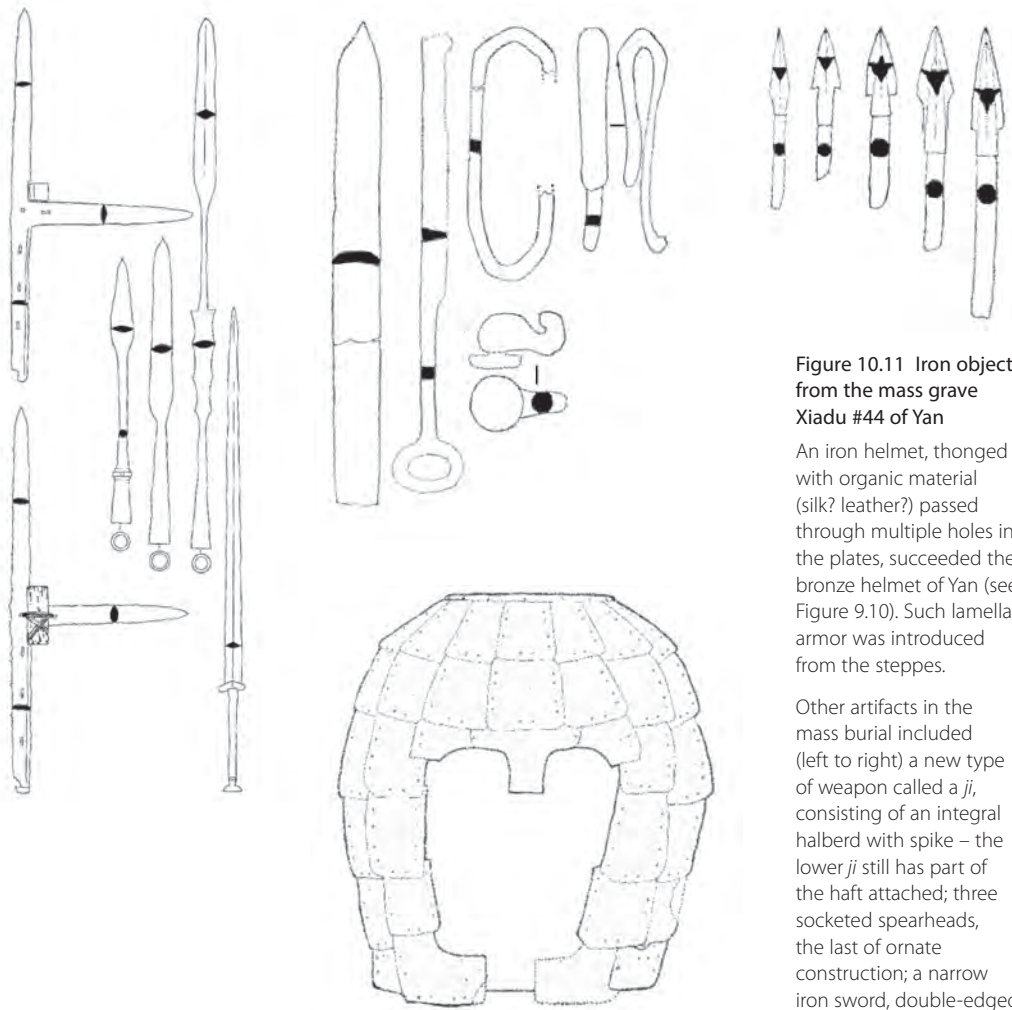


Figure 10.11 Iron objects from the mass grave Xiadu #44 of Yan

An iron helmet, thonged with organic material (silk? leather?) passed through multiple holes in the plates, succeeded the bronze helmet of Yan (see Figure 9.10). Such lamellar armor was introduced from the steppes.

Other artifacts in the mass burial included (left to right) a new type of weapon called a *ji*, consisting of an integral halberd with spike – the lower *ji* still has part of the haft attached; three socketed spearheads, the last of ornate construction; a narrow iron sword, double-edged, 1m long; an iron dagger-blade; a ring-handled knife; iron ring; iron hook; and below, an iron belt hook; then five cross-bow bolts with bronze heads and iron shafts. Cross sections are in black; not to scale.

4c BC.⁵⁸ Malleable cast-iron was developed in the 3–4c BC, while a quench-hardened steel sword was retrieved from a mass grave in Yan dating to the 3c BC (Figure 10.11); before the Yan excavation, quench-hardening (plunging hot steel into cold water) was thought to have been developed in the Han period.⁵⁹

Mass production and distribution of iron articles virtually guaranteed the transformation of the agricultural, economic, and military spheres in the Late Zhou states while providing a competing basis for wealth, which may have led to the rise of a new elite.⁶⁰ Commoners even used iron for personal dress: 60% of the iron objects excavated from 1000 Jin state commoner burials were belt hooks, some inlaid with silver and gold designs.⁶¹

Salt

Salt had been produced in the upper Yangzi drainage from the Late Neolithic, taking advantage of the unique salt-pan geology of the Sichuan Basin.⁶² Intensified production associated with the rise of Sanxingdui in the late 2nd millennium BC was followed by Chu state involvement in the mid-1st millennium BC. Production sites such as Zhongba are identifiable by multitudes of sherds from salt-making pottery, used as boiling vats, storage vats, and molds for making salt cones for trade. The Zhou state of Qi, taking in the Shandong coast, was also involved in salt production from sea water, as it has been throughout history.

A cash economy

Zhou states competed not only militarily but also economically. Different coinages of the various states are the visible remains of the latter, making early Chinese numismatics a rich field of study. Initiation of cast-iron production also provided a new basis for economic competition, which resulted in the formation of a nouveau riche among the Late Zhou aristocracy. Although Confucian mores disdained mercantilism, the development of a true marketing system and the rise of a merchant class provided the necessary infrastructure for imperial consolidation at the end of the Zhou period.

Each Zhou state minted its own coins (Figure 10.12); spade- and knife-shaped coins were initially used in the north-central Zhou states and eastern Shandong peninsula region, respectively, perhaps developing from the use of actual iron spades and knives in economic



Figure 10.12 Zhou coins

Production of metal coinage began in the Middle Zhou period. Bronze coins shaped like knives (far left) and spades (middle) are assumed to have developed from their utilitarian analogues. Round coins were produced in Late Zhou, and the round coin with square hole (right) was the standard Qin currency after unification.

transactions. Stamped-plate coins of gold, silver, copper and lead are known from the southern state of Chu and probably derived from stamped designs on ceramics. Not only are the shapes and styles of coins useful in determining chronological sequences, they often bear inscriptions giving their locus of manufacture or their stated value. Market transactions using such coins allowed the widespread distribution of such basics as salt and iron and fueled the desire for elite goods. Markets flourished in capital towns from Middle Zhou but were strictly controlled by each state.⁶³

Han-period texts document the rise of the “proto-industrialist” at this time, particularly apparent in iron production.⁶⁴ Three different families, two of whom ran ironworks in the Zhou states of Zhao and Wei, are mentioned in the chapter entitled ‘Biographies of the moneymakers’ in the great Han history, the *Shiji*. We are told these ‘untitled nobility’ were banished to the south when these states were conquered by Qin in the 3c BC.

The Northern Zone

Exchange with Northern Zone groups was important in the 1m BC, whether or not exchanges were bartered or paid with cash. Items imported into the Zhou states included scabbard slides, tents and canopies, and – from the late 4c BC – horse-riding gear. Semi-precious stones, rugs and carpets, furs, leather and other animal products, horses, mules, donkeys, and camels were also much sought after from the north.⁶⁵

From Rong and Di to hu

Archaeological remains along the northwestern borders of the Qin, Zhao and Yan states tell the story of Zhou interaction with nearby agro-pastoralists and gradual encroachment on their pasturelands, while the historical texts give names to these people. Materials from the early 1m BC archaeologically form the Type I culture (Table 10.2 and Appendix K.1), assigned to Di and Rong peoples who are described in relevant texts as “farmers, shepherds and mountaineers” and who spoke unintelligible languages.⁶⁶ These border peoples initially fought by chariot but began infantry warfare in the 7c BC. Relations of Middle Zhou states with Rong and Di vacillated between warfare and diplomatic peace initiatives, but the fact that the sites assigned to these groups all sit within the later long walls (see Figure 10.5) indicates their ultimate incorporation into Zhou state functioning.

By the end of the 5c BC, Rong and Di ceased to exist independently, their place taken by “mounted bowmen who practiced pastoral nomadism”⁶⁷ – generally referred to as *hu*, a term often translated as ‘barbarians’. The Xiongnu, who became the major *hu* tribe of importance, are known textually from the late 4c BC. The *hu* were closer to steppe cultures than the Zhou states – the latter evidenced only in *ge* halberds. The remains were distributed from north of the Zhou capital of Qiyi into Inner Mongolia. From the 3c BC, the ‘animal in combat’ design of the steppe was incorporated into Ordos products.

Type II culture (Table 10.3 and Appendix K.1) supposedly represents the *hu*, who can be seen to have slightly different material constituents in the north and west.⁶⁸ Relations between stateside and frontier *hu* peoples were generally peaceful until the northern and western states of Qin, Zhao and Yan began building walls at the end of the 4c BC. These walls prevented the free movement of border peoples who were by then mounted on horses and who had come more and more to depend on pastoralism and needed access to pastures. Most sites assigned to the *hu* are excluded by the walls (see Figure 10.5). Closing the pasturelands to these northern and western populations stimulated their organization and led to greater hostilities,⁶⁹ which culminated in the Xiongnu raiding from the north.

Table 10.2 Regional variants of Type I material culture assigned to Rong and Di

These date from mid- to late Early Zhou through Middle Zhou, representing agro-pastoralists with dogs, cattle and horses – the latter given special treatment. The remains were distributed close to the Zhou states.

Rong, Di	Di Zhongshan	Di	Di?
Guanzhong > N. Shaanxi > Hutuo & Sanggan Rivers	(SW of Beijing) Mid-Hutuo R.	Upper Hutuo R.	N. Hebei, NW of Beijing
stone burial furniture; royal tombs w/3-D animal bronzes, NZone objects, animal deposits (including horses)	stone burial furniture; royal tombs w/3-D animal bronzes, N.Zone objects	stone burial furniture; horse deposits	stone coffins, more animal deposits
tiger belt plaques, gold wire earrings	gold wire earrings, bronze tiger plaques	gold wire	disc-shaped gold wire earrings, tiger belt plaques
bronze swords with animal-mask guards, knives	swords with animal-mask guards, knives		swords with animal-mask guards
scissors, cutters		scissors	cutters
bronze <i>fu</i> cauldrons; double-handled <i>guan</i> jars; tripods, <i>hu</i> w/ cording, chains	<i>hu</i> pots (corded, chains); at Lijiaya: <i>li</i> and <i>fu</i> cauldrons, double-handled; tripods	square-mouth <i>fu</i> cauldrons; <i>hu</i> (corded, with chains); Central bronze tripods	cauldrons; no Central bronzes; ceramic tripods
bone horse bits, snaffle bits		bone horse bits, snaffle bits	double-ring snaffle bits

Type I site burials often contain dog and cattle bones, with horses reserved for elite burials; these remains are interpreted as coming from a mixed economy, that is, agro-pastoralism. Bronze horse bits (see Figure 10.3) have been recovered from graves prior to the 6c BC, interpreted as signaling the presence of horse-riding “long before the introduction of mounted warfare into China by Wu Ling, king of the Jin state of Zhao, in 307 BC”.⁷⁰ Bronze decorations used on horse gear, chariots and funerary carts were common in northern cultures. Weaponry followed earlier examples, with curved knives and short straight double-edged swords being the main items, while casting of vessels of simple shapes was occasionally attempted.⁷¹ Nevertheless, the elite imported many Zhou bronzes, including vessels, along with other prestigious goods such as cowries from farther south.

Type I and Type II material cultures temporally overlapped during the late 1m BC; this was possible because they were regionally distinct. In the past, all Northern Zone bronzes have been referred to by some authors as Ordos bronzes, but strictly speaking, Ordos bronzes belong to Type II (north). The 8–7c BC saw major changes in the local bronze industry and the types of objects produced in the Ordos region (daggers, axes, horse bits, and plaques with geometric and animal motifs); these are apparently unrelated to the products of the earlier Ordos cultures, Zhukaigou and Lijiaya mentioned in Chapter 8.⁷² Bronzes of the northeastern frontier zone (Appendix K.2) are pertinent to social development in the Manchurian Basin and will be discussed in Chapter 11.

Table 10.3 Material culture remains assigned to the *hu* (including Xiongnu) through three phases

Type II	Early	Middle	Late
date	Late Shang–Early Zhou	mid-Spring & Autumn in Middle Zhou	Warring States = Late Zhou
accessories and others	ring-buckle with hook, bronze 'buttons', long ladle	S-plaques, ring buckles with hook, animal plaques, S-plaques, cervid-mounted mirror	animal plaques (similar to Xiongnu), tabular plaques, ring buckles with hook, gold/turquoise raptor cap ornament
weapons	antennae dagger, ringed-hilt sword, tubular-hilt axe, ring-pommel knife	antennae daggers, <i>ge</i> halberds, tanged single-edge knife/sword	double-edge short sword (iron?), ring-pommel dagger, halberd
tools	socketed axe	pickax	pickax (iron?)
vessels	deep ceramic bowl w/ ring handle, pedestaled handled cauldrons	narrow-necked ceramic jars, long-necked jar w/double ring handles, deep ceramic bowl w/ring handle	narrow-necked ceramic jars, some w/two handles
horse/chariot	snaffle bits, bronze disks/plaques	snaffle bits, bosses?, ferrules? caps, sheep figurines	bronze caps, animal caps

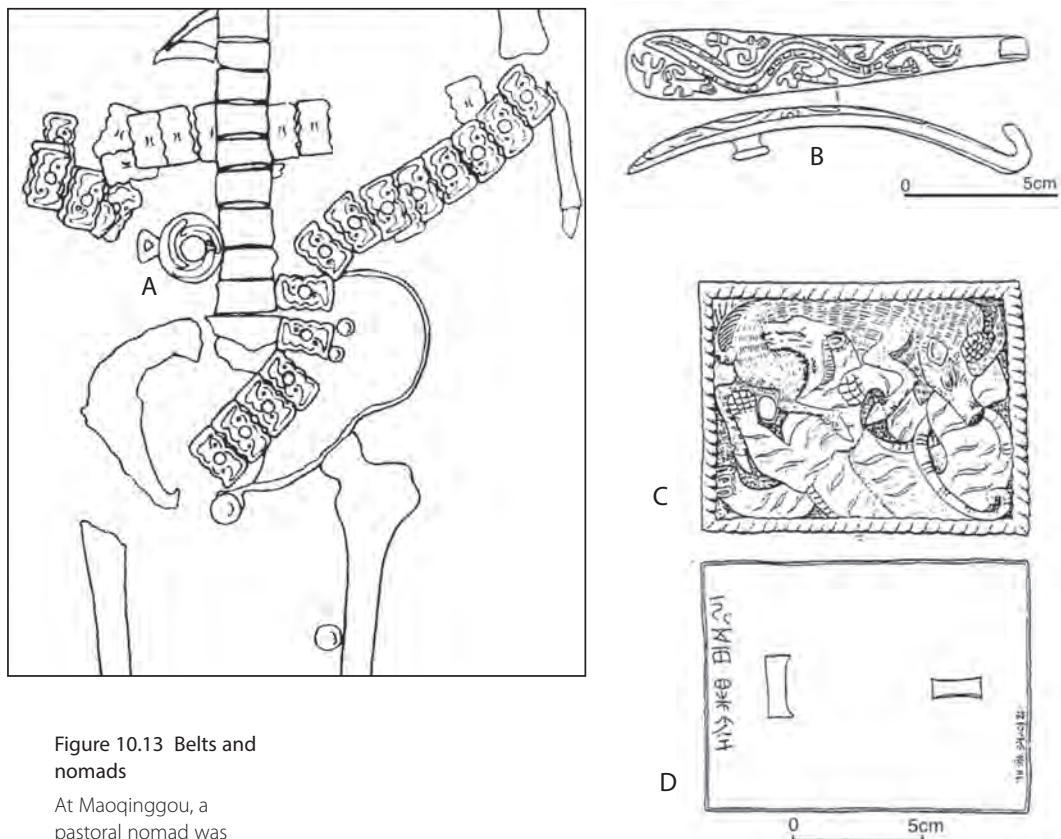


Figure 10.13 Belts and nomads

At Maoqinggou, a pastoral nomad was buried with his belt made of bronze plaques. Compare the belt's round belt hook above (A) with a standard Zhou bronze belt hook (B). Belt plaques and other objects were made in Qin state specifically for pastoralist consumption. The intertwined animal motif on this cast gold plaque (C) is a steppe characteristic. The reverse (D) states the weight and the motif; not shown here is the textile pattern on the back surface that derives from the indirect lost-wax technique.

The Maoqinggou cemetery of the early Ordos Bronze culture reveals an important step in the development of northern identities as separate from the Zhou states: northern peoples are particularly noted for the belts they used to secure their tunics at the waist. Usually made of leather but sometimes cloth, the belts were decorated with bronze plaques that were sewn or tacked on, and then were fastened with unique types of buckles (see Figure 10.13). Confucius himself characterized these border peoples as wearing their hair loose and folding their clothes right over left.⁷³ The symbolic use of dress and ornamentation was instrumental in dichotomizing Northern Zone peoples from the Zhou and Han,^{ix} though certainly different groupings used their clothing and ornaments to distinguish themselves from each other.

A recently discovered tomb near the late Qin capital of Xianyang contained 25 clay molds for casting bronze and gold

^{ix} Indeed, traditional Chinese dresses and jackets as well as Korean *chima/chogori* and Japanese kimono still properly fold left over right. Western women who fold their kimono bathrobes right over left, in the Western manner, are unwittingly imitating the dress of a Japanese corpse for burial.

objects specifically for the use of pastoralists.⁷⁴ Included in this 'bronze-caster's tomb' was the seal of Figure 10.7, one of the few administrative artifacts recovered from Bronze Age East Asia.

Northern signifiers: animal art and gold

The Northern Zone witnessed a radical transformation in the late 2nd and early 1st millennia BC. Increasing pastoralism was a common theme, though the communities varied widely in their organization, subsistence, and their relations with other stateside groups. The emergence of a generalized non-Zhou northern identity is now recognized,⁷⁵ expressed symbolically through similar artifact types such as undecorated bronze cauldrons, production techniques, and decorative subject matter. A new material, gold (Figure 10.14), is a marker of northern aesthetics, contrasting with the traditional emphasis on jade by Shang/Zhou peoples.

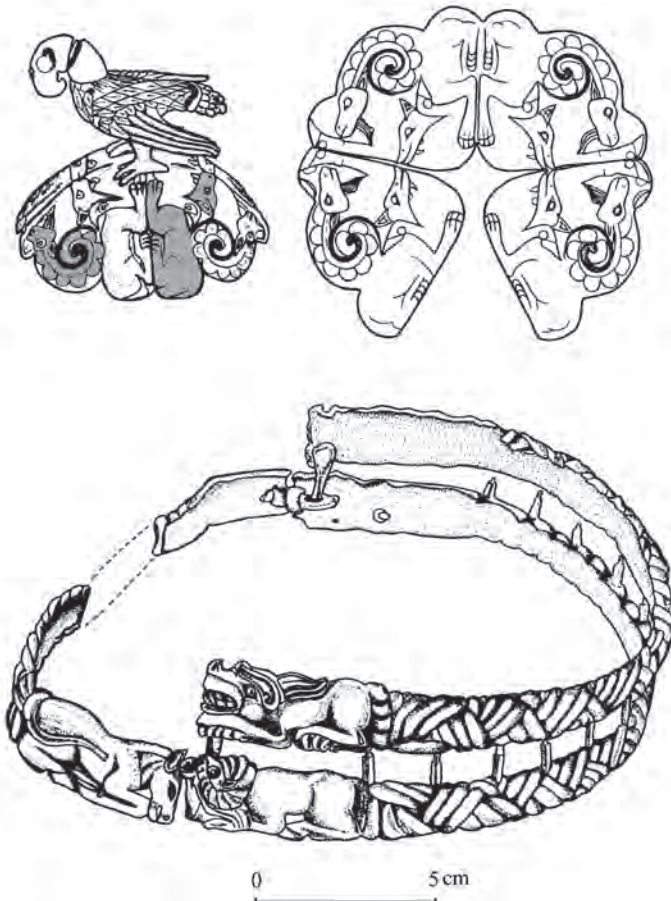


Figure 10.14 Gold ornaments from steppe and Siberian traditions

The animal art clearly depicts horse and ram on the neck ornament, but is the other animal a dog? tiger? lion? or a composite? The raptor – a particularly important Siberian motif – crowns the gold cap; arrayed around the sides are mirrored images of canines (compare the paws with the ram hooves on the neck ornament), and dismembered rams' heads.

The appellation “Animal Art” is usually applied to products of the Northern Zone, as many of the bronze weapons sport animal-shaped pommels; plaques and paired belt buckles usually portray animal figures. Designs are derived from Scythian animal art or Central Asia (animal combat, camels) or from southern Siberian cultures (raptors), while in some cases East Asian motifs (such as the coiled animal) were transmitted from the Northern Zone to southern Siberia, Central Asia and Scythia.⁷⁶ They represent both contacts and interchanges with these distant peoples as well as groups migrating from the steppes as pastoralists or craftspeople into regions closer to the Zhou states.

Further reading

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Chapter 11

Pen/Insular Rice, Bronze and Iron

(1300–200 BC)

The first millennium BC witnessed three new technologies being introduced into the Korean Peninsula and Japanese Islands: wet-rice agriculture, bronze and then iron, in that order. These were associated with new ceramic forms: Mumun on the Peninsula, stimulated by pottery on the Liaodong peninsula, and Yayoi pottery in the Islands, stimulated in turn by Mumun. The time-transgressive appearances of these new technologies are difficult to sort out because this time span is affected by plateaus in the radiocarbon calibration curve (see Appendix A). However, new AMS dates are providing a framework by which we can define particular blocks of time, leaving their refinement for later.

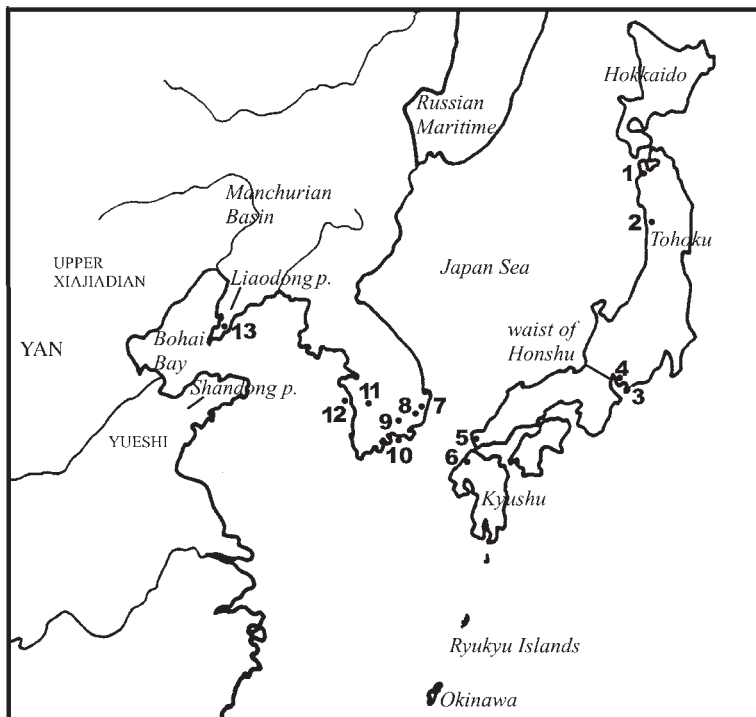


Figure 11.1 Sites mentioned in Chapter 11

- 1 Kamegaoka, Sunazawa, Tareyanagi
- 2 Jizoden
- 3 Yoshigo
- 4 Inariyama
- 5 Doigahama
- 6 Kanenukuma, Etsuji, Shinmachi, Itazuke
- 7 Okhyon
- 8 Komdan-ri
- 9 Taepyong-ri
- 10 Nuk-do
- 11 Songguk-ri
- 12 Konam-ri
- 13 Dazuizi

As background for these developments on the Pen/Insulae, we must look toward the China Mainland (Figure 11.1), particularly the Upper Xiajiadian culture of the western Manchurian Basin and the Yueshi culture of the Shandong peninsula.

Contributions from the China Mainland

Upper Xiajiadian

The Upper Xiajiadian (XJD) culture of the southwestern Manchurian Basin was part of the Northern Zone of frontier bronze cultures (see Appendix K.2). It overlapped with the Late Shang and Zhou periods, between 1200 and 200 BC. Coincident with Late Shang, it began with a shift from sedentary farming in Lower XJD (as discussed in Chapter 8) to the incorporation of pastoralism.ⁱ The balance between herding and farming varied widely among groups during the 1m BC. Pigs were not herd animals and still accounted for 46% of the meat eaten at one Late Zhou site, while another 20% came from cattle and 14% from sheep/goats; at other sites, sheep/goats predominated over cattle by large margins.¹

Upper XJD burials reveal a considerable investment in local bronze production as well as importation of some Shang/Zhou traditional bronzes.² Bronze casting was technically excellent, and “the quality, quantity and diversity of the bronze assemblage of the Upper XJD are unprecedented”.³ Concomitantly, there was a decrease in ceramic quality, quantity and vessel forms. Whereas painted pottery was highly valued in Lower XJD (see BOX 8.1), status seems to have been expressed through bronze wealth in Upper XJD. Some locally made vessels copy ceramic forms, while others are highly distinctive creations with geometric designs and animal figures. Tools and weapons are well represented, especially animal head knives and animal belt plaques, chisels, daggers, arrowheads, mirrors – and, probably later in the sequence, helmets and chariot fittings.

Several simple bronze cultures across the Manchurian Basin co-existed with Lower and Upper XJD (see Figure 10.5).⁴ As early as the late 2m BC, small bronze trinkets and knives from the Northern Zone had filtered into the eastern basin and even into the Korean Peninsula.⁵ However, very few horse-related items or bronze belt plaques of the mounted pastoralists occur outside Upper XJD and animal deposits in graves were rare; compared with Upper XJD burials, one tomb in the eastern basin had horse-trappings but “no bronze vessels, *ge* halberds, bronze helmets, nor animal-style

ⁱ These new dates by Li, Y.Y. *et al.* (2006) close the previously identified gap between Lower and Upper XJD.

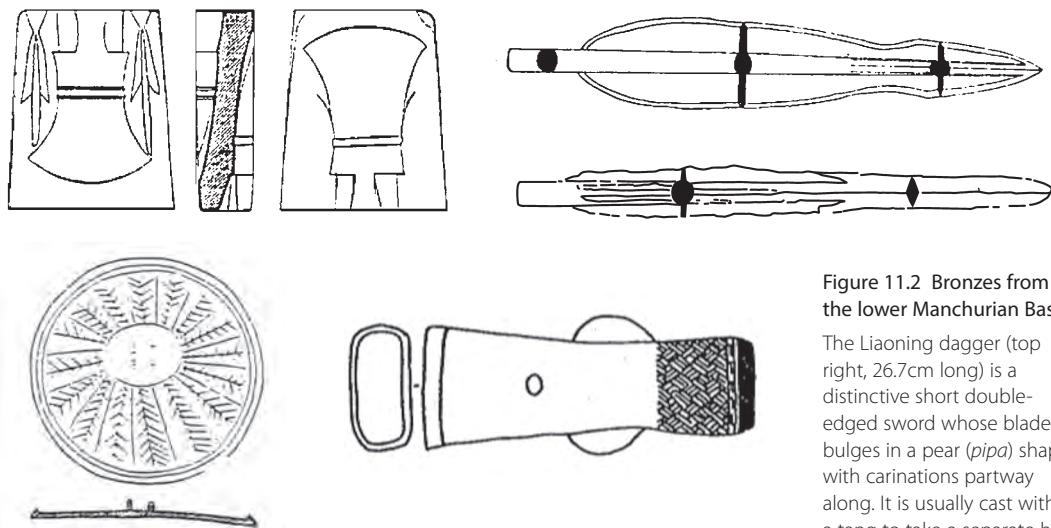


Figure 11.2 Bronzes from the lower Manchurian Basin

The Liaoning dagger (top right, 26.7cm long) is a distinctive short double-edged sword whose blade bulges in a pear (*pipa*) shape with carinations partway along. It is usually cast with a tang to take a separate hilt; the hilt/pommel itself was often cast bronze but could be made of stone or wood. The slender dagger (above, 32cm long) replaced it later. Bronze scabbards (lower right) are finely decorated, but as the mirror (lower left) illustrates, bronze-casting could also be coarse. The stone mold piece (upper left) shows an ingenious conservation of material, with two molds for axes back-to-back interspersed with molds for bronze arrowheads; the bivalve complements for both sides are missing.

ornamental plaques”.⁶ Instead, the eastern basin sites yield bronze fishhooks! Hunting and fishing continued with stock raising, as faunal remains of *Sus*, herd animals and deer occur in varying proportions in different areas.

Several elements of Manchurian Basin cultures were important to the formation of Mumun culture and its pottery. Bronzes began to appear in the northern Korean Peninsula in the transition from the 2m BC to the 1m BC.⁷ The Liaoning dagger emanating from the Upper Xiajiadian culture is the most distinctive artifact (Figure 11.2),ⁱⁱ while the geometric mirror appeared across the Northern Zone. Such bronzes, occasionally found in cist burials and dolmens common to the eastern basin (Figure 11.3), became the standard burial styles in Mumun.

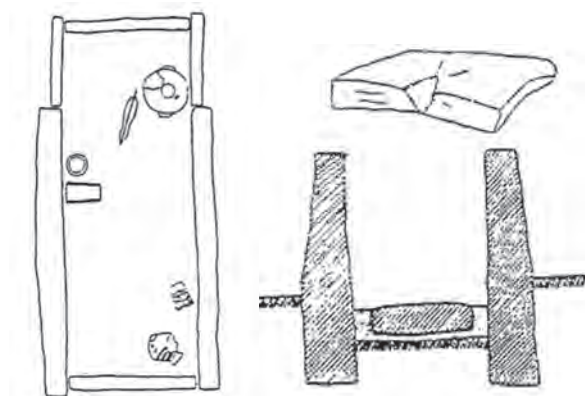


Figure 11.3 Bronze Age burials

Cist graves (left) and table dolmens (right) were characteristic of the eastern Manchurian Basin; cists were about 50cm wide, while the dolmen on the right is twice that width. The capstone (upper right) was one large slab; it is not known if dolmens were covered with earth, but it is hard to imagine how they were constructed without banked earth for dragging the capstone into place.

ⁱⁱ Named after modern Liaoning Province in the lower Manchurian Basin.

Yueshi culture

In the 2m BC, the Shandong region played host to the Yueshi culture, as known archaeologically, and the Dongyi (eastern Yi) peoples, as known historically. We have already seen that this area quickly became acculturated to Shang, but even in the Middle Zhou period, Yi peoples were still being conquered and incorporated by the Qi state. Rice agriculture existed in the Shandong region since the Late Neolithic, and the Shandong peninsula is an acknowledged route for the spread of rice to northeastern Asia.⁸ The agricultural assemblage included the lunate polished stone reaper, which became the standard Pen/Insular reaping knife.

Establishing Mumun culture

From the late 2m to late 1m BC (see Table 1.3),⁹ the peoples of the Korean Peninsula underwent several successive cultural changes, each of which has been used by different authors to demarcate the prehistoric period after Chulmun:¹⁰

- a loss of decoration on ceramics and new forms – the replacement of Chulmun ('comb-marked') pottery by Mumun ('plain') pottery between 1500 and 1300 BC to form a ceramic Mumun period,
- the appearance of dolmen burials in the north in the late 2m BC to begin a megalithic age,¹¹ and
- the intrusion of diagnostic bronzes from the Manchurian Basin in the 7c BC to form the Bronze Age.¹²

As noted in Chapter 1, the Mumun period (1450–350 BC) is chosen to be used here. Mumun initially carried on Chulmun subsistence patterns of farming millet, hunting and marine exploitation. Eleven shellmounds are known for the Mumun period, including Konam-ri discussed in Chapter 5; aside from shells, they contain bones of fowl, marine and terrestrial mammals, and domestic dog. The lack of composite fishhooks, however, suggests no deep-sea fishing.¹³ As in the Japanese archipelago, pit-traps were apparently used, and rock art may depict many hunting and fishing scenes dating to Mumun.¹⁴ Cultivation of millet, sorghum, beans and peas was joined by rice agriculture around 1000 BC if not before;¹⁵ thereafter, rice is evident throughout the Peninsula. Though millets were regionally important, along with wheat, barley and pulses,¹⁶ specific villages such as Nuk-do may have relied exclusively on rice as indicated by $\delta^{13}\text{C}$ isotopic studies.¹⁷

Transmission of rice farming

Past studies hypothesized that rice agriculture spread from the China Mainland eastward along possibly three routes,¹⁸ with the northernmost route now being the preferred option. In this scenario, the Shandong peninsula serves as the departure platform for three possible points of entry to the east: overland around Bohai Bay, from Shandong to Liaodong peninsulae, or from Shandong straight to the Korean Peninsula. Among these, Shandong–Liaodong connections are looking most likely.

The Shandong and Liaodong peninsulae close off the mouth of Bohai Bay (see Figure 11.1). From 4000 BC, the coastal areas had been occupied by hunter-fisher-gatherers whose shellmound remains, similar to those of the Jomon occupants of the Japanese Islands, have yielded deer and *Sus*.¹⁹ Pottery from that time through the Yueshi culture of the late 2m BC is known on Liaodong, so connections must have a relatively deep history. Rice is first postulated to have spread from Shandong to Liaodong as a dryland crop around 2500 BC, and there is some evidence of its presence on the Korean Peninsula in the 3m BC.²⁰ Around 1500 BC, irrigated wet-rice technology together with a polished stone toolkit followed the same route from Shandong to Liaodong.²¹ Rice has been recovered from the Dazuizi site (1300–1100 BC) on the Liaodong peninsula,²² while dates for the earliest rice grains from sites in the southern Korean Peninsula cluster between 1100 and 900 BC.²³ Production of rice in permanent fields is thought to have begun after 950 BC.²⁴ Of course, all of these dates may change with new excavations and information.

Leading up to the Mumun transformation, Chulmun millet farmers on the Korean Peninsula (Chapter 5) seem to have reverted to a “mobile foraging lifestyle concomitant with the disappearance of sedentary settlements”,²⁵ perhaps making the spread of rice-farming from Liaodong easier.²⁶ Some archaeologists believe that rice was introduced through a major migration of people and their languages (BOX 11.1), while others postulate adoption of the new crop by the indigenous Chulmun.ⁱⁱⁱ Regardless, Early Mumun is characterized by ceramic styles and house architecture that are shared with eastern Liaodong, and Liaodong pottery with two appliqué bands is fingered as the antecedent to Mumun pottery itself.²⁷

Not all Mumun peoples became heavily dependent on rice, with dryland crops very important in some areas.²⁸ *Oryza* remains from the Korean Peninsula are mainly in the south, with only two locations documented in the northern Peninsula – an area inhospitable to rice

ⁱⁱⁱ But see Kim, J. (2003) for a model of forager/farmer interaction that goes beyond these concerns.

BOX 11.1 Tungusic versus Chinese languages

Korean archaeologists have generally accepted migration of Tungusic-speaking peoples from the Manchurian Basin. A new hypothesis proposes that Japonic was the language transmitted from Shandong into Liaodong, then into the Korean Peninsula with rice agriculturalists, and finally into the Japanese Islands. Japonic place-names allegedly survive in the Koguryo language of the mid-1m AD, and DNA data underwrite the geographical connections (see BOX 11.2).

Historical linguists have been at loggerheads trying to discover the origins of the Korean and Japanese languages, which are so very different from the Chinese language family. They have been proposed as part of the Altaic language family, which ostensibly stretched across northern Eurasia from the Japanese archipelago, through the Korean Peninsula, Manchurian Basin and Mongolian Plateau into Turkey. The newly proposed 'Eurasianic' and 'Transeurasian' are alternatives, while more modest claims by researchers who reject the Altaic superstructure assign Korean and Japanese to the Tungusic sub-family. Relations between the Pen/Insular languages are still unclear, but modern Korean and Japanese are virtually identical in sentence structure and word ordering. One hypothesis attributes this grammatical proximity to convergence and borrowing, while others explore possible genetic relationships through semantic analysis.

The Chinese languages consist mostly of monosyllabic morphemes; spoken words can be represented by one or two written characters. Today's standardized written language is understood by literate people of all Chinese languages, though their spoken languages (including the way they pronounce the characters) are often mutually unintelligible (e.g., Mandarin vs. Cantonese, among others). Almost all characters are ideograms, indicating meanings rather than sounds per se; hence differences in local pronunciation create few problems in comprehension of the written language. In contrast, Korean and Japanese are inflected languages with conjugated verbs and adjectives that cannot be represented in their entirety by word-characters. Due to this radical mismatch in language structures between the Mainland and the Pen/Insulae, early Koreans and Japanese first simply used Chinese as the language for written documentation. Eventually, though, they devised systems to write their own languages with Chinese characters; much later, phonetic systems were invented: the *kana* syllabary in 9c Japan and the *hangul* alphabet in mid-15c Korea. Japan retains a mixed character+syllabary writing system, but now that Korean is entirely written in alphabet (with only occasional character additions), this mismatch of inflected vs. uninflected languages is less important. But the very fact that characters are hardly used in today's Korean severely limits the ability of readers of Chinese and Japanese to understand it (and vice versa).

- Chinese word for 'to come': 来 (*lai*) [+ another character suffix to indicate tense, etc.]
- Japanese word for 'to come': 来る (*kuru*) [combination of verb stem *ku-* written with the Chinese ideogram but pronounced in Japanese + suffix *-ru* written phonetically in *kana*]
- Korean word for 'to come': 오다 (*oda*) [completely in *hangul*]

production even today.^{iv} Rice is attested at two sites in the southern Peninsula as early as *ca.* 1000 BC,²⁹ eventually appearing at 33 of 46 southern sites.³⁰ Some believe dry rice was the initial crop, but paddy fields are known from 10 sites in the south,³¹ for example at the 7c BC Okhyon site, where fields, bunds, and irrigation canals accompanied an associated village of 60 dwellings.³²

Dolmen and cist burials

Dolmen and cist burials were traditions imported from the eastern Manchurian Basin. Both were taken up with zest, and tens of thousands of dolmens exist across the Korean Peninsula (Figure 11.4); 413 cemeteries containing thousands of megalithic burials have been excavated.³³ Early table-types in inland regions tend to be smaller and lack many grave goods; however, later go-board types in the south approach monumental sizes, often with pit or cist burials underneath rich in prestige goods (Figure 11.5). Some areas like the southwestern Peninsula around Kwangju City have multitudes of dolmens, many arranged in linear fashion. The go-board dolmen in Figure 11.4 is one of at least six lined up in a modern paddy field. These dolmens might be related to the emergence of chiefly figures on the southern coast late in the Mumun period.³⁴

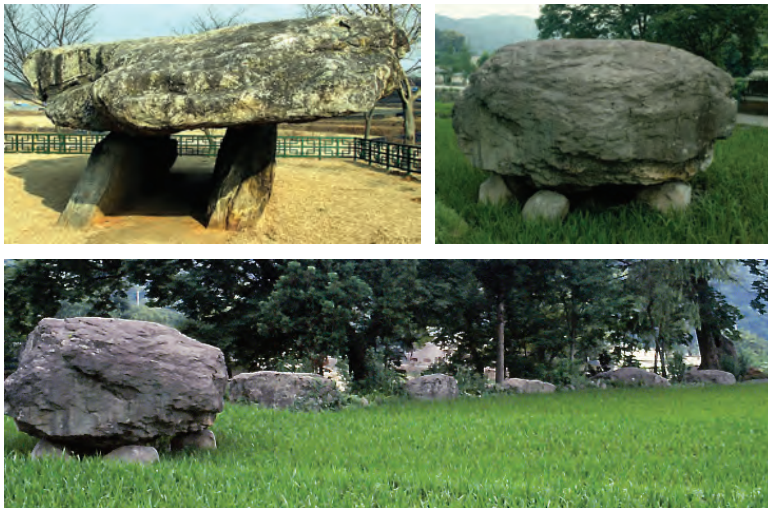


Figure 11.4 Dolmens of the southern Korean Peninsula

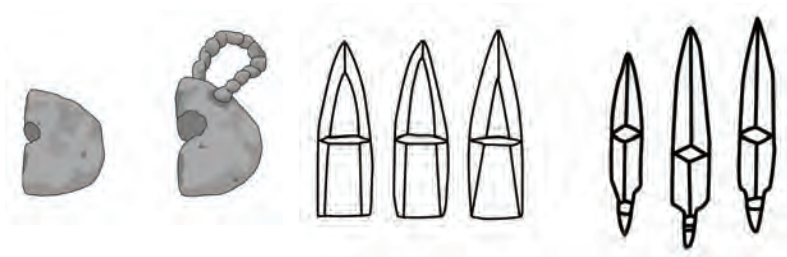
The northern-type table dolmen (upper left) co-existed with a southern modification, the go-board dolmen (named after a Japanese board game). The southern-type dolmen (upper right) has a large ceiling boulder resting on smaller rock feet, usually with a cist burial underneath. This one looks like it occupies pride of place in a modern rice field, but in fact it is one of a linear string of dolmens preserved despite subsequent agricultural activity (bottom).

^{iv} Even after decades of investment in fields and irrigation facilities, rice accounted only for 30% of grain crops in North Korea by 1990, and then crops failed in the following few years (Savada 1993).



Figure 11.5 Mumun non-bronze prestige goods

Half-moon pendants and cylindrical beads were popular ornaments; amazonite (microcline) was a favored beadstone. Stone weaponry takes the shape of bronze swords and daggers, while polished stone arrowheads come in tanged or untanged form. Burnished red or black pots were used in graveside rituals as well as deposited as grave goods.



Final addition of bronzes to the funerary goods

Liaodong bronzes began infiltrating the Korean Peninsula in the early 7c BC;³⁵ included were the Liaoning dagger, bronze socketed splayed-edged axes, arrowheads, and socketed bronze spearpoints also having a pear-shaped blade (see Figure 11.2). These occur relatively rarely in burials and accompany an indigenous grave goods repertoire consisting of polished stone daggers, beadstone pendants, red burnished pottery, and two types of polished stone arrowheads (see Figure 11.5). Stone daggers, present from Early Mumun, are part of a generalized distribution throughout the eastern Manchurian Basin and Russian Far East. Researchers all agree they were probably copying narrow bronze swords that were unavailable to them.³⁶ The groundstone weapons occur in both pit-buildings and burials. Together with the rare bronze item when available, these grave goods occur in various combinations and probably mark community leaders, though with little evidence of overt hierarchy.³⁷

Most Liaoning-style objects are considered to have been imported, as casting molds are found in the lower Manchurian Basin but not generally elsewhere.³⁸ Many of the daggers have been repeatedly

resharpened, wearing down the blade edges to the central rib, or refashioned into knives or arrowheads,³⁹ suggesting that bronze was in short supply and that owners did everything possible to extend the life of a weapon. About 100 Liaoning-style artifacts have been found throughout the Korean Peninsula, more than half of them daggers.⁴⁰ Surprisingly a cluster of Liaoning daggers have been found in the west-central portion of the south coast;⁴¹ their maritime location gives rise to questions about possible sea links to the lower Manchurian Basin.

Middle Mumun (850–550 BC) settlement and society

Middle Mumun onward embodied trends toward social hierarchy but at the same time is characterized by many scholars as a community-oriented society, compared to individualizing society in the Early Iron Age.⁴² Construction of dolmen burials, begun from late Early Mumun,⁴³ was a communal affair, and Middle Mumun cemeteries consisting of a mix of dolmens and cist and jar burials are undifferentiated in terms of special arrangement and size of graves. Liaoning-style bronzes were not abundant enough to form ‘wealth’ objects but instead probably indicated the integration of community heads into incipient-elite networks, marking a transition from transegalitarian to incipient ranking.⁴⁴ Utilitarian utensils, excluding imported bronzes, were produced in individual households. Most settlements are quite small, but a few large settlements and cemeteries indicate a growing population and emergence of central places; in the southwestern Peninsula, three-tiered site hierarchies have been identified.⁴⁵ These central places, often ditched and palisaded, nevertheless tended to be occupied for only a few generations.⁴⁶

Despite relatively sparse evidence for status differentiation, researchers see several indications of competition throughout Mumun.⁴⁷ In the north, around modern Pyongyang, 93.5% of excavated Mumun houses had been burned; in the south, 25% of Early Mumun and 36% of later Mumun houses were burned. Two Middle Mumun excavated settlement sites described below, however, suggest the growing isolation of village leaders within daily activities.

Taepyong-ri site

Positioned in a hook of the Nam River in the south-central Peninsula (Figure 11.6), Taepyong-ri was occupied initially in Early Mumun (1450–800 BC), marked by multi-hearth rectangular pit-buildings occupied by extended families; in contrast, Middle Mumun (800–550 BC) pit-buildings were round and of smaller size, and both

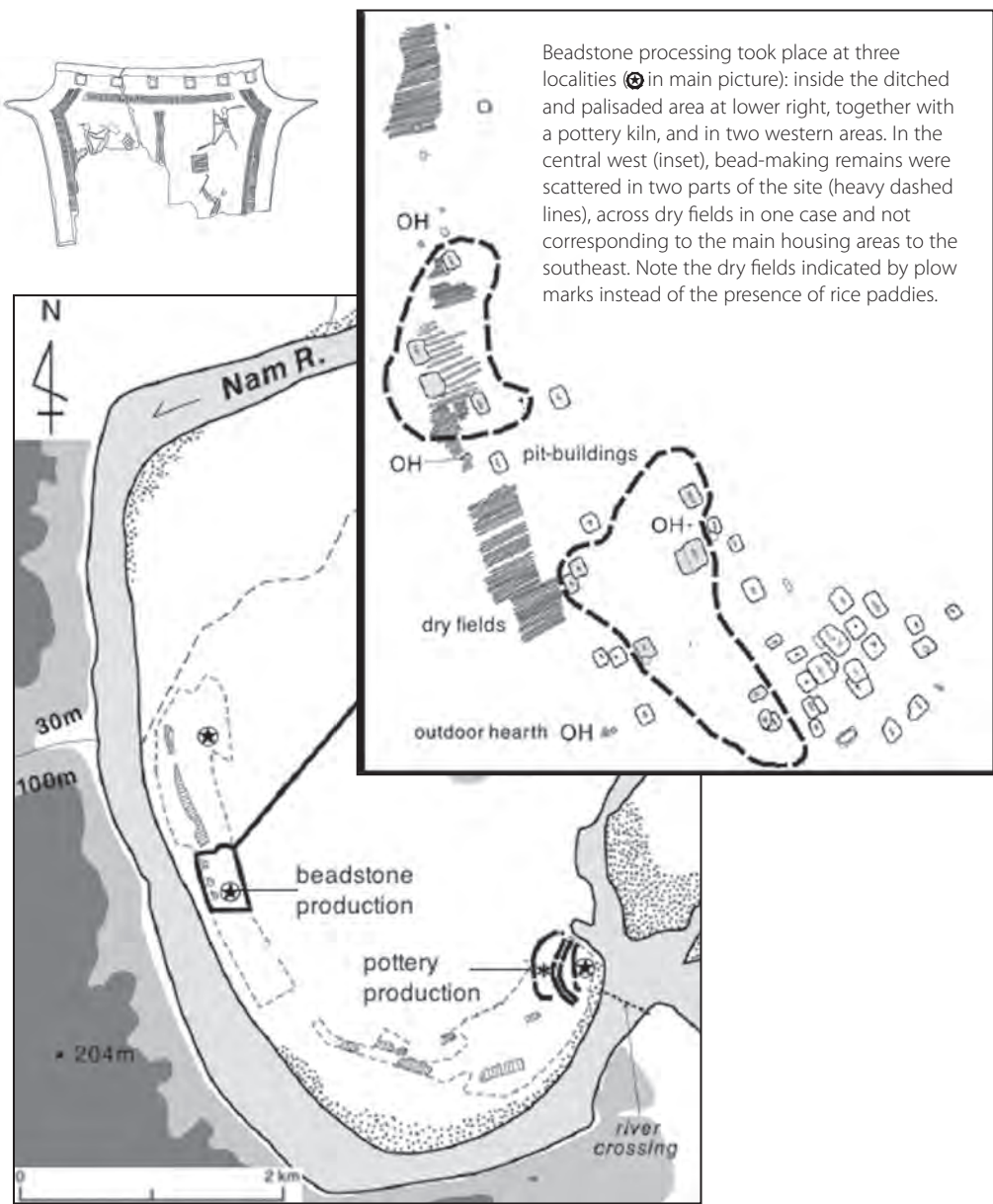


Figure 11.6 Middle Mumun settlement at Taepyong-ri

A bronze shield-shaped object (upper left) bears a picture of ridge-and-furrow dry-field farming with a foot-plow.

storage pits and hearths had moved outdoors. The Taepyong-ri site has provided some of the earliest dry fields consisting of plowed ridge-and-furrow remains; such fields were depicted on a bronze 'shield-shaped' object, albeit dating to Late Mumun / Early Iron Age (12cm wide, shown in Figure 11.6 upper left, and in a photo in Figure 11.9, upper right). The farmer above the field is depicted operating a foot-plow or ard, while another below wields a hoe.

This is one of the few excavated Middle Mumun sites that gives good evidence of non-bronze craft production.⁴⁸ Here, beadstones were processed at several locations, attested by grindstones and powdered debris. In the site's southeastern part, pottery and bead production was carried out within the multiple-ditched enclave. Burials containing some of these goods also occurred within or near the enclave, marking emerging elites by spatial differentiation in burial patterns.

Komdan-ri site

This is a hilltop site with a ditched enclosure; houses occur along the ridge within the enclosure and on the southwestern hillside. Analyses of floor area, the numbers of total artifacts, and numbers of prestige goods show that those houses having high values of all three variables are located within the enclosure (Figure 11.7). Note that all the houses at Komdan-ri are either square or rectangular, in contrast to a new pit-building structure at Songguk-ri.

House #	> mean area	> mean artifacts	+ prestige goods	house shape
INSIDE				
2	+	+	+	?
4	+			?
5		+		Sq
6			+	?
13	+	+	+	Rect
31	+	+	+	Rect
41	+	+	+	Rect
50	+			Rect
59			+	Sq
60	+			Rect
104	+			Sq
OUTSIDE				
21	+	+		Sq
22		+		?
23			+	Rect
30		+		Sq
35		+		Sq
36			+	Rect
46			+	Sq
74		+	+	Rect

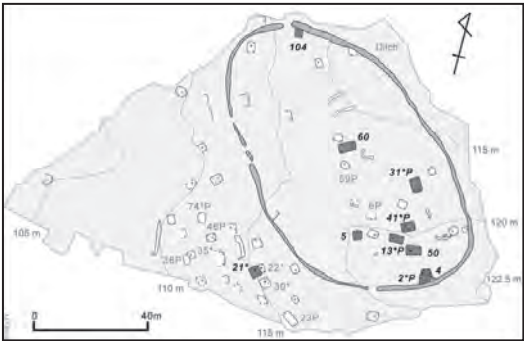


Fig 11.7 Hilltop settlement of Komdan-ri in early Middle Mumun

Houses within the village ditch included the most prestigious. Nine houses (above, black) had floor areas greater than the mean; all but one were located inside the village ditch. Four houses inside the enclosure (2, 13, 31, 41, shaded in table) had greater than the mean floor area, greater than the mean number of artifacts, and various prestige goods. Other houses, on the southwestern hillside, variously shared these attributes, but only two (21, 74) had more than one attribute. House shape seems unimportant, though several within the enclosed area were rectangular.

P = presence of prestige goods
*P = presence in all three columns (shaded in table)

Songguk-ri site

In the early phase of occupation at Songguk-ri, several old-style square pit-buildings were cordoned off by a wooden palisade, while new-style round pit-buildings occupied a separate area; the old-style square buildings and palisade were thoroughly burned – raising questions about the nature of the peoples who occupied these different areas and their relationships. The round pit-building found here had a unique depression in the center, with two posts for roof support placed either inside it or just outside the depression. This floor plan became a diagnostic trait of the Songguk-ri culture, which coalesced around 650 BC and spread throughout the southwestern Peninsula after 450 BC.⁴⁹

At its largest, Songguk-ri site covered 61ha; almost 400 pit-buildings and pillared buildings interpreted as granaries have been excavated there.⁵⁰ Interments were in cists, pit graves or jar burials, but there were few dolmens; the richest was a cist burial that yielded a Liaoning bronze dagger, polished stone dagger and projectile points, and cylindrical beads.⁵¹ Craft production on site included pottery, bead-making, and grindstones for processing stone objects, while one stone mold for a Liaoning dagger hints at bronze-casting but was probably simply an imported object. Liaoning daggers are also known from two other sites inland from Songguk-ri.⁵²

Late Mumun / Early Iron Age transitions (500–200 BC)

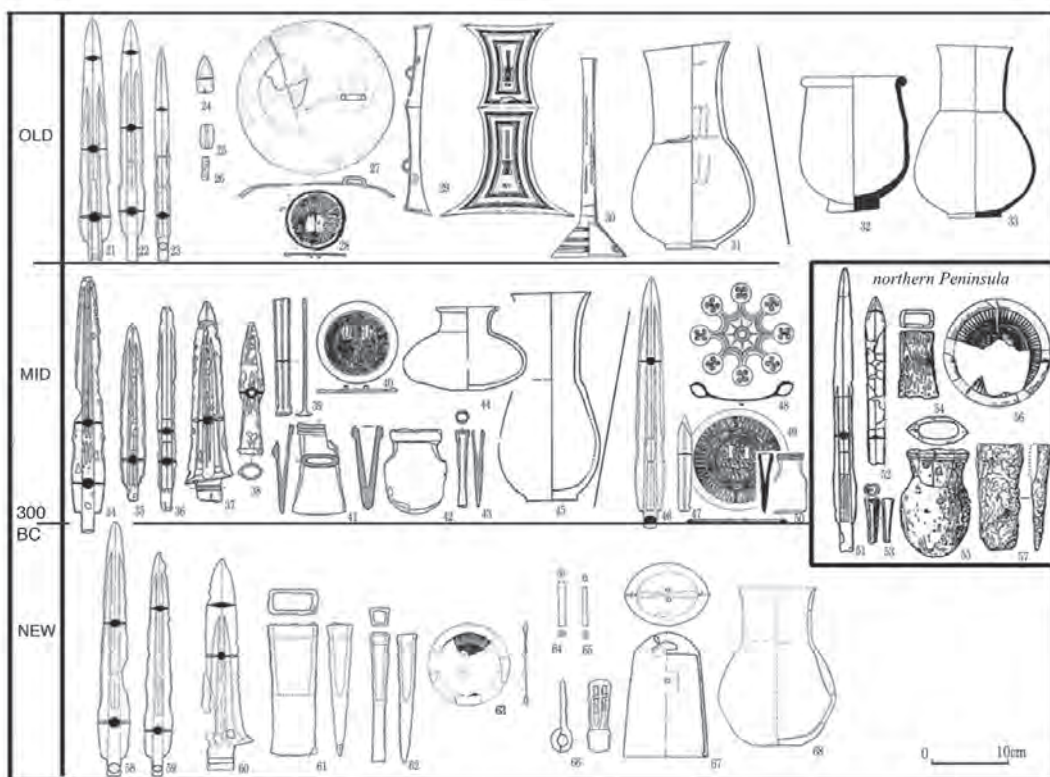
Scholars employ various names and divisions for the latter half of the 1m BC (see Table 1.3) because this is the time period of the arrival of iron objects and the institutionalization of bronze-working in the southern Peninsula. The way these metals were integrated into society varied from region to region so that it is difficult to paint a picture of generalized development. The significant changes are noted below.

In contrast to the many known Middle Mumun settlements, few Late Mumun villages have been located; they continue the ditched and palisaded structure. The inland southern Peninsula appears to have been depopulated, with people congregating in coastal locations in villages built on low hills.⁵³ Pit-buildings were more squarish with internal stoves, and some had two central Songguk-ri type depressions; shellfish gathering was renewed after a millennium hiatus,⁵⁴ as at the Konam-ri shellmound mentioned in Chapter 5. Around 450–400 BC, plain pottery acquired a thickened rim having a round cross section;⁵⁵ this later changed to a triangular cross section, providing a diagnostic attribute for dating.⁵⁶ Another innovation was burnished black pottery; long-necked jars became a treasured grave good.⁵⁷

The Slender Bronze Dagger culture

The initiation of local bronze-working in the southwestern Peninsula focused on a narrow form of the bronze dagger. Often thought to be a Peninsular invention, the narrow dagger was actually developed in Liaodong around the 5c BC,⁵⁸ and a narrow halberd appeared after that, probably about 400 BC.⁵⁹ The establishment of the Slender Bronze Dagger culture in the southwest was based on these narrow forms and was presumably supported by an intensification of wet-rice agriculture. This picture is quite different from that given for the central and southeastern Peninsula, where a hiatus in rice production is suggested both by current palaeobotanical data and by the inland depopulation noted above.⁶⁰

Figure 11.8 Artifacts of the Slender Bronze Dagger Culture



Bronzes

- narrow-bladed daggers (21–23, 34–36, 46–47, 51, 58, 59)
- halberd (37, 60)
- socketed spearhead 38
- lid-like objects (27)
- coarse-line mirrors (28)
- fine-line mirrors (40, 49, 63)
- socketed axes (41–42, 50, 54–56, 61)
- chisels (43, 53, 62)
- sword sheath-shaped objects (29)
- trumpet-shaped object (30)
- plain bell (67)

Iron

- jingle bell rattles (48)
- point-planes (39, 52)
- buckles & rings

Iron

- ax (57)

Ceramics

- thick-rimmed pottery (32)

Groundstone

- long-necked jars (31, 33, 45, 68)
- globular jar (44)
- arrowhead (24)

Tubular beads

- beadstone (25, 26)
- glass (64, 65)

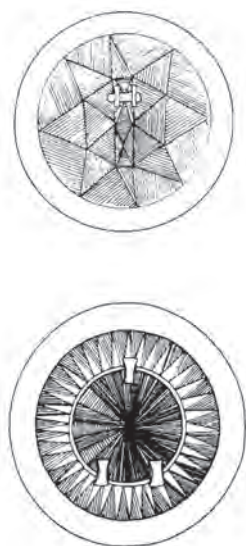


Figure 11.9 Ornamented bronzes

These bronzes from the southern Korean Peninsula exhibit extraordinary craftsmanship and creativity. Designs include human figures and geometric patterns. Rope-like handles of twisted bronze and jingle-bell terminals are unusual embellishments. (Details of upper right in Figure 11.6.)



Late 1m BC bronze objects are few in number but arresting in style, various ornamented pieces being particularly outstanding (Figures 11.8 and 11.9). Halberds and spearheads joined the weapon inventory;⁶¹ these were cast in molds made of talc or sandstone.⁶² Bronze rattles, on the other hand, flourished in various shapes, revealing the perfection of hollow casting techniques. Designs on bronze mirrors evolved from coarse- to fine-lined designs – the latter clearly illustrating knowledge of the drawing compass; analysis of one fine-lined geometric mirror revealed that its design had been engraved into a mold made of hardened molding sand.⁶³ Further bronze artifact additions consisted of engravers, parallel-sided socketed axes, chisels, point-planes, and the small bronze bell⁶⁴ with bronze clapper. Judging from the high standardization and technical sophistication of bronze artifacts within each category, local villagers or even regions probably did not have their own bronzesmiths – the bronzes more likely were produced in one or two places of unknown location in the southwest.

Zhou-style shaft burials appear on the Peninsula around 500 BC; some of these have megalithic caps. In the southwestern Songguk-ri

culture area, three assemblages are recognized from these new-style burials: 1) those with ritualistic bronzes of strange shapes or jingle-bell accoutrements, 2) those yielding only weapons, and 3) those with weapons and bronze mirrors. The first assemblage is assigned to a “shaman or shaman-king”, while the latter two are designated as warrior graves.⁶⁵ This incipient ranking is interpreted as the ‘individualization’ of society, with shamans and warriors given preferential burial. The ornamented forms and presence of rattles particularly call to mind the shamanistic bronzes of the eastern Northern Zone, and chieftains using these objects may have relied on ritual powers to bolster their political status. The combination of bronze production and large southern dolmens (see Figure 11.4, lower) is taken to represent the emergence of regional chiefdoms.⁶⁶

Arrival of iron

Cast-iron objects began to filter into the southern Korean Peninsula in the 4c BC, most likely from the Zhou state of Yan (see Chapter 9). Though it was considered the weakest of the seven major Warring States and located in the far north, Yan was an economic powerhouse. It produced a greater abundance of iron artifacts than Qin (the strongest state), and several iron production sites have been excavated in Yan territory; inscriptions on molds at one site intimate that it was a Yan state ironworks.⁶⁷ After 400 BC, cast-iron began to filter into the Korean Peninsula from Yan. Mainland-style cast-iron implements occur particularly in the southwestern Peninsula, where bronze-casting was initiated. Most iron forms were utilitarian: hoes, chisels, sickles and gravers.⁶⁸ Iron, however, did not replace bronze, and throughout the late 1m BC, bronzes remained the major prestige goods.

The big question is when and how local iron production commenced. For this, we must look beyond the China Mainland to Northeast Asia to understand the possibilities available to Peninsular inhabitants. Bloomery iron from the Russian Far East might also have become available at this time.⁶⁹ Since bloomeries – but not blast furnaces – are known from the Peninsula, it currently appears that iron-working was established at a small scale using basic bloomery smelting technology. However, if malleable cast iron was available, either from the Mainland or through local decarburization techniques (see BOX 10.1), blacksmiths could forge iron into implements. Smithing, if not smelting, was practiced at least from 200 BC in the northern Peninsula and from 150 BC in the southern Peninsula.⁷⁰

From Jomon to Yayoi

While the Korean Peninsula was undergoing the Chulmun–Mumun transformation in the late 2m BC, Late and Final Jomon cultures in the Japanese Islands were still feeling the effects of population depletion and the collapse of Middle Jomon nucleated settlements and trade networks (discussed in Chapter 6). Settlement was more dispersed, while burial and ritual sites such as the large stone circles became separated from occupational areas; a decline in the numbers of shellmounds in some regions coincided with the beginnings of salt production and increased game hunting, signaling different relationships with the ecological zones.⁷¹ Late Jomon peoples were beginning to experiment with continental foodstuffs – barley, rice, and the millets – but even together with the local domesticate barnyard millet, those crops accounted for less than 1% of their subsistence remains.⁷² Nevertheless, the presence of alien crops in the Islands attests that communications across the sea continued, as already revealed by pottery and obsidian distributions.

As we have seen, rice is indigenous to the southern Mainland, and the routes of its dispersal to the Pen/Insulae have been narrowed down to a transfer between Shandong and Liaodong in the first instance. For its spread to the Japanese Islands, it now seems that the southwestern Korean Peninsula served as the springboard for introducing the technology into the Final Jomon culture of North Kyushu. The exact point in the North Kyushu pottery chronology of this transfer is between Kurokawa-type Final Jomon ceramics and Yama-no-tera pottery – which used to be considered a Final Jomon type until it was found associated with paddy fields and is now the earliest Yayoi pottery.⁷³

Yayoi beginnings

Yayoi is a place-name in Tokyo where the first post-Jomon pottery was identified.^v The Yayoi period was thus defined as having Yayoi pottery, which was thought to have appeared initially around 300 BC. For decades, the Yayoi period was dated between 300 BC and 300 AD. Both dates have now changed (see Table 1.7). First, in the mid-1980s Yayoi beginnings were redefined in terms of agriculture, not pottery.⁷⁴ It was discovered that Final Jomon sites in North Kyushu, known from their Yuusu-style Jomon pottery, suddenly had paddy fields and irrigation/drainage canals that indicated the adoption of continental wet-rice agriculture. These Final Jomon sites, then assessed to date

^v Ironically, this particular find turned out to date from the Yayoi–Kofun transitional period, with the end of Yayoi now dated to 250 AD.

from about 400 BC, were reclassified as Yayoi, thus pushing back the beginnings of the period. Second, comparisons in the late 1990s with materials from the Korean Peninsula resulted in another push backward to 500 BC;⁷⁵ third, in 2003 the National Museum of Japanese History announced new radiocarbon results dating Yayoi beginnings to the 10c BC.⁷⁶ This created a flurry of amazement and objections,^{vi} and new assessments of both relative chronologies based on artifact typologies and radiocarbon methodology were undertaken. Several scholars have since produced evidence, based on a complicated relationship between the forms of Liaoning bronze daggers (remember the finds on the southwestern Korean Peninsular coast) and stone daggers, that places the beginning of Initial Yayoi in the 9–8c BC.⁷⁷

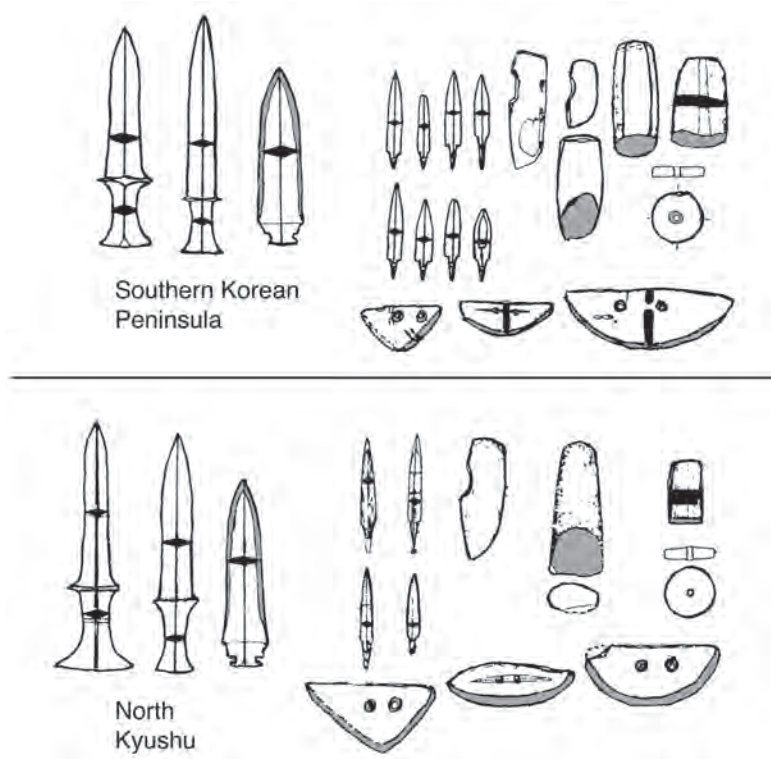
As of August 2014, there existed 22 AMS dates for Yuusu pottery, calculated by three different laboratories; calibrated with IntCal13, the majority of calendar dates for this pottery type fall between 1017 and 507 BC at greater than 90% probability.⁷⁸ All of the date ranges begin before 720 BC, thought to be the point at which Proto-Songguk-ri culture attributes began to appear and long before the consolidation of Songguk-ri culture at 620 BC. The date ranges overlap from older to younger, suggesting possible contact and migration from the Early Mumun onward. The dates were made on soot, food crust and adhesions on Yuusu pottery, an Initial Yayoi pottery type. Yuusu is divided into several subtypes (I, Ia, Ib, I-new, IIa, IIb), which the AMS dates suggest spanned five centuries; however, these sub-types do not fall in strict order according to the AMS dates, so the types may not be chronological but social markers. As always, more research needs to be carried out on the dating of Initial Yayoi, but its existence before the 5c BC cannot now be denied.

The Initial Yayoi culture is considered to be a ‘package’, derived from the southwestern Peninsula and consisting of the new agricultural technology as well as new ways of thinking and interacting with each other;⁷⁹ dolmen burials, ditched settlements, Songguk-ri type pit-buildings, and pig rituals are also named as elements of the Initial Yayoi package.⁸⁰ The most recent analysis places the technological transfer between 800 and 600 BC,⁸¹ that is, during the formulation but before the spread of the Songguk-ri culture after 450 BC. Pre-existing contacts among the fishing populations of North Kyushu Jomon and the Pen/Insular coast facilitated this transfer.⁸² Technological imports consisted not only of rice seed-

^{vi} Among others, see Keally’s (2004) caustic response to objections to the 2003 announcement.

Figure 11.10 Artifacts common to the southern Korean Peninsula and northern Kyushu in Early Yayoi (not to scale)

Stone daggers and polished stone arrowheads have diamond-shaped cross sections (black). Utilitarian tools included polished stone axes, adzes, planers, chisels and spindle whorls; the lunate reaping knife with a curved cutting blade accompanied a distinctive triangular reaper. Beveled edges (grayed) are distinctive on tools and echo the formation techniques of weapons with diamond-shaped cross sections. The stone reaping knife was important in changing the genetic make-up of the crop: since only the heads of grain were harvested with this tool, threaded with a cord and slipped over the hand, early ripening plants were selected, leading to the development of cold-resistant varieties.



grains but also field systems to grow them in and tools to cultivate and harvest the crop. Polished stone reapers, axes, grooved axes and spindle whorls are common to both sides of the Korea Strait;⁸³ even the distinctive triangular reaping knife was carried across (Figure 11.10). Other polished stone tools came as well: beveled and tanged arrowheads, and stone daggers fashioned with and without hilts. The second Yayoi pottery type in Kyushu (Yuusu) demonstrates that the Mumun small red-burnished jar was transformed into a large storage jar (Figure 11.11).

The Shinmachi site suggests that the ‘package’ was not institutionalized immediately: it took time to be manifested and possibly involved several phases of contact. Initial Yayoi burials at the site were at first oriented in random directions; but at the beginning of Early Yayoi,^{vii} new burials were added in rows, copying Peninsular grave alignments.⁸⁴ The few skeletal remains excavated from the site are all close to Jomon-type populations of western Kyushu,⁸⁵ raising the question of who was responsible for the technological transfer. One hypothesis puts the onus on Jomon folks traveling to

^{vii} Early Yayoi started between 750 and 600 cal. BC (Mizoguchi, K. 2013: table 3.1; Onuki, S. 2005: fig. 1).

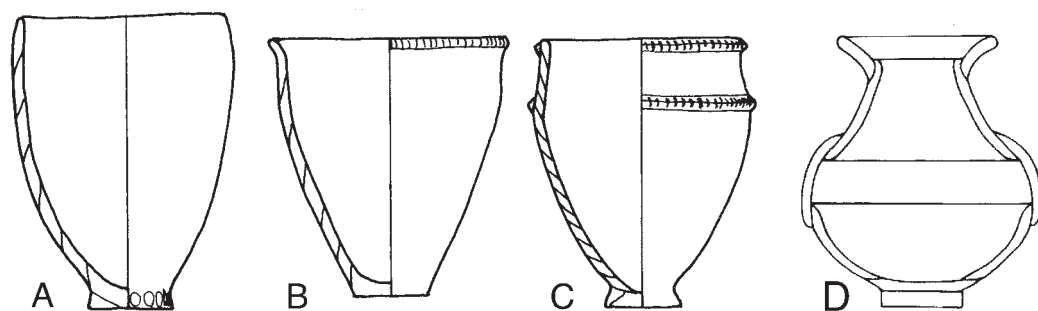


Figure 11.11 The marriage of Pen/Insular potteries

The combination of Peninsular-style storage jar (photo right) and Final Jomon cooking pots (photo left) suggests that Peninsular men took Jomon wives after emigrating to the Islands. Mumun (A) and Yayoi cooking pots (B) have coils merging in the opposite direction from Jomon pots (C), indicating a change in manufacturing techniques. The Yayoi storage jar was initially slab-built (D) instead of coil-built, giving it a unique outer profile.

the Peninsula and returning with knowledge of rice agriculture and Peninsular ways,⁸⁶ but most scholars believe the package was brought by immigrants from the Korean Peninsula, who may have been attracted by the wide-open Fukuoka Plains – hardly used by the few Jomon groups in the area.⁸⁷ How many and when they arrived are unknown. Immigrant skeletal material, however, is well attested at the Doigahama and Kanenokuma sites dating to Early Yayoi (BOX 11.2).⁸⁸

Bilateral acculturation of two different populations is indeed manifest at Etsuji site, one of the earliest Yayoi villages in North Kyushu.⁸⁹ It follows the Jomon pattern of concentric arrangement of houses and burials around a central plaza (see Figure 5.6). But unlike Neolithic villages on the Mainland and some on the Peninsula,

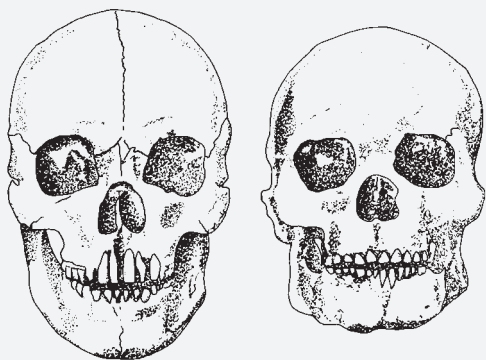
BOX 11.2 Physical relations among Pen/Insular peoples

In 1991, the 'dual structure' hypothesis was proposed to account for modern Japanese population variation, based on a mixture of the indigenous Jomon and continental immigrants from north(east) Asia, the latter arriving in a 'dual wave': first at the beginning of the Yayoi period and then again in the 5–6c AD during the Kofun period. DNA studies on *modern* Japanese have supported this hypothesis, indicating that 65% of the modern Japanese gene pool is derived from the continent. In contrast, *modern* Okinawans in the far south and *modern* Ainu in the far north of the archipelago have less than 20% continental input. Only recently, however, has the 'continental' source of the early migrants been identified via their material culture as the southwestern Korean Peninsula.

Working from the other direction, *ancient* DNA from Jomon skeletal remains indicates closer relations with the Ainu than with Okinawans, with Mainland Japanese third in line. These results confirm earlier assessments of skeletal morphology that the aboriginal population of the Japanese Islands were the Jomon, who were then overwhelmed by incoming migrants except at the archipelagic extremities (Okinawa and Hokkaido). The Ainu subsequently received genetic input from the historical Japanese and the northern Okhotsk peoples.

Yayoi avg. heights:
male 162–163cm
female 151cm

Jomon avg. heights:
male 158–159cm
female 148cm



The migrants had long faces (left) and were taller and gracile, whereas the indigenous Jomon were shorter with more robust bodies and rounder faces (right). The blending of these two produced the Yayoi peoples and the historic Japanese.

The Korean Peninsula has yielded very few skeletal remains for comparative research, but DNA studies on *modern* populations indicate close associations with Japanese and, somewhat less, with Chinese. Interestingly, it seems that there was also a dual wave (or more) of immigration into the Peninsula.

Modern Koreans are more similar to northeast Asian than to southeast Asian populations, but a surprising 83% of Y-chromosome (male) DNA comes from southern Mainland lineages. This is viewed as the result of "the spread of male-mediated agriculture" and linked to wet-rice technology. Analyses of *ancient* mtDNA from Shandong indicate southern matrilineal lineages in contrast to the *modern* population of northern derivation.

Not only do these genetic findings support the archaeological observations of material similarities between Mumun on the Korean Peninsula and Yayoi in the islands, they also support the hypothesis of immigration from Shandong during the spread of rice agriculture.

Jomon sites were not ditched; thus, the remains of a V-shaped village ditch at Etsuji indicate Peninsular influence. Moreover, the houses were constructed on the Songguk-ri pattern: two roof-supporting posts close to a central depression (but no hearth structure). Etsuji's two cemeteries illustrate two co-existing organizations: graves in a circular arrangement (interpreted as locals) and graves in linear alignments (assigned to immigrants). Jomon villagers who adopted the Peninsular package thus became "Yayoinised".⁹⁰

It is tempting to speculate on the initial relationships among the village occupants (Jomon or Songguk-ri) and with surrounding Jomon villages.^{viii} There is no evidence of strife and warfare between remaining Jomon and Yayoi individuals, especially since any Jomon person adopting wet-rice agriculture became 'Yayoi' in our terminology. Kinship and intra-community ties are seen as instrumental in converting local inhabitants to the new subsistence system. Intriguingly, this technological transfer of wet-rice agriculture is also thought to have been intimately bound up with the spread of language – in this case Japonic (see BOX 11.1).

Yayoi expansion

The earliest paddy fields are now dated to 970 cal. BC, and subsequent radiocarbon dates show a continuous expansion through western into eastern Japan by 400 cal. BC (Figure 11.12).⁹¹ Thus,

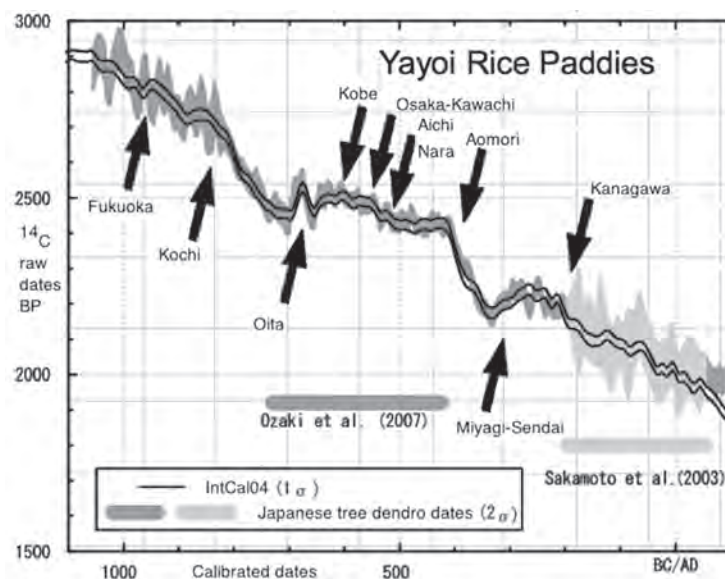


Figure 11.12
Radiocarbon dating of
the spread of paddy field
agriculture

Locations for excavated paddy fields are given by prefecture, illustrating a gradual expansion of the geographical scope of wet-rice agriculture eastward through the archipelago.

^{viii} See K. Mizoguchi's interpretation of moieties (2013: 63).

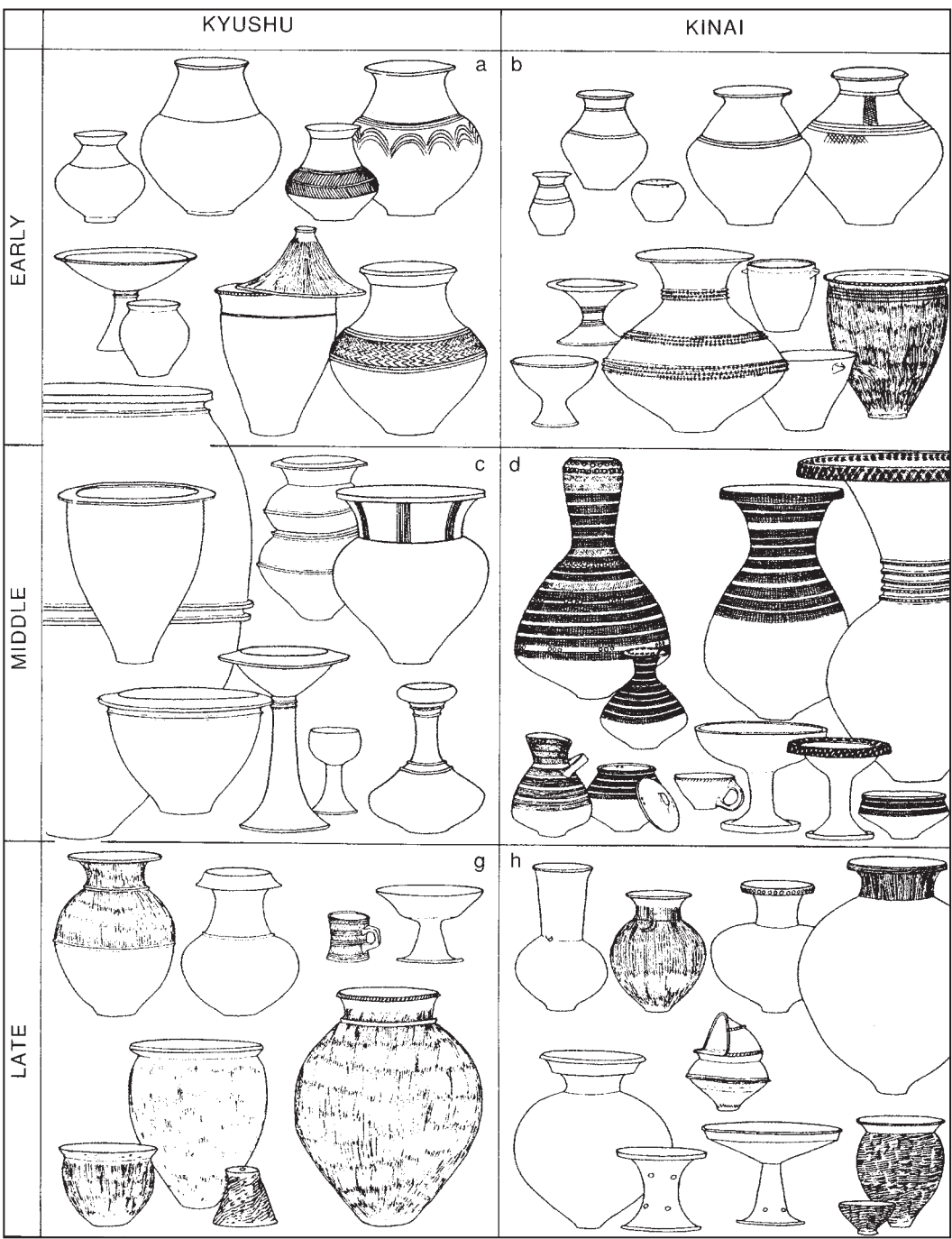


Figure 11.13 Yayoi pottery types in western Japan

Early Yayoi assemblages are marked by the new vessel shapes: large storage jars and pedestaled bowls. Middle Yayoi burial jars of Kyushu are more than a meter tall and can hold an entire corpse. The Kinai tradition lacks such jars but is distinguished by a series of bottles, cups and pitchers; the fine comb-pattern surface decoration is unparalleled elsewhere. In Late Yayoi, surfaces scraped with wood chips or paddle marks embellish coarse wares; in the Kinai, standardized shapes suggest workshop production – a first indication of increasing organizational complexity.

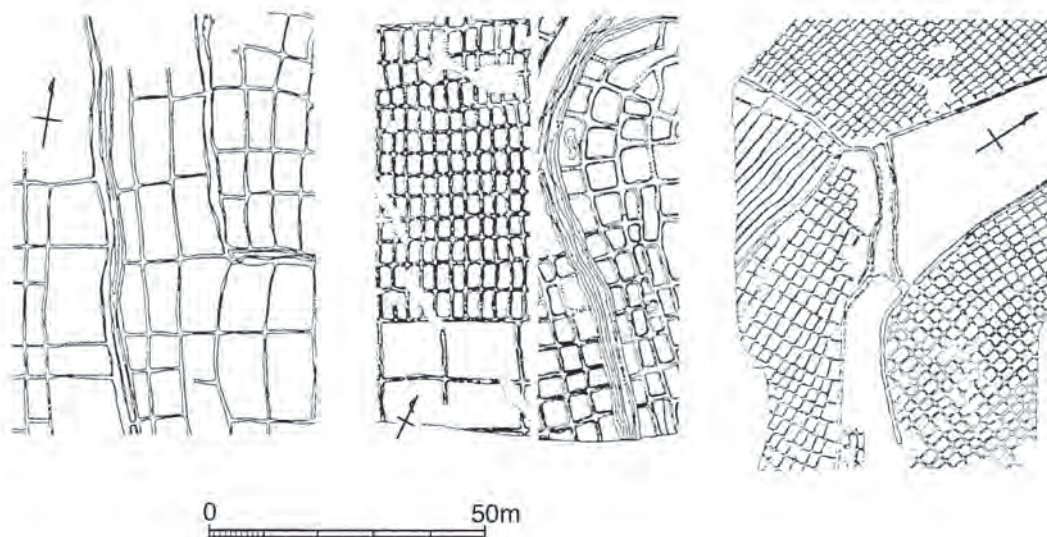
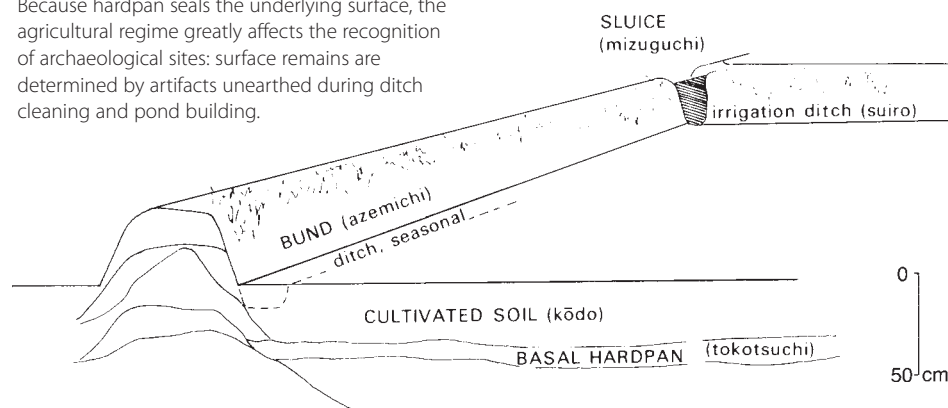
North Kyushu and the tip of western Honshu acted as an incubator zone for producing a hybridized Yayoi culture that spread from Kyushu to the waist of Honshu. The expansion had previously been explained simply through population growth and the need to found new villages and cultivate new land. However, it is now realized that growth alone cannot account for the phenomenon and that immigration played a large role. Metric analyses of (surviving and sampled) teeth from burials demonstrate a migrant *population* in the incubation zone, with *individuals* scattered farther east.⁹² Some argue that the absolute numbers were less important than their ratio to native Jomon and the population growth rates of each.⁹³

The pottery that marks this diffusional process is named after the Itazuke site and appears throughout the Inland Sea region to the waist

Figure 11.14 Paddy field technology

Modern paddy fields in Japan (upper) have a specific stratigraphy that seals the underlying layers with hardpan and is never broken through. Successive paddies may be created in place, indicated by the layering of hardpans and bund mountings. Earlier Yayoi paddies from different sites (lower) conformed to topographical conditions and were generally small.

Because hardpan seals the underlying surface, the agricultural regime greatly affects the recognition of archaeological sites: surface remains are determined by artifacts unearthed during ditch cleaning and pond building.



of Honshu (around Nagoya City) in the mid-1m BC (Figure 11.13). A few early settlers even reached the northern tip of Honshu – as known at the sites of Sunazawa, Tareyanagi and Jizoden – probably by boat along the Japan Sea coast.⁹⁴ These northern sites were soon abandoned, presumably because cold-climate japonica rice had not yet been thoroughly developed.

Yayoi settlements were always newly founded in this expansion, whether by migrants or by new adopters of agricultural lifeways; there were no Jomon sites that became Yayoi sites. In the Osaka region, Jomon villages co-existed with the first Yayoi settlements but disappeared thereafter.⁹⁵ Several Yayoi sites show growth through concentric renewal of village ditches or the budding off of daughter settlements that shared a common cemetery with the mother village. Paddies have been excavated at numerous sites, often preserved under flood or tephra layers, showing successive reconfiguring of the field systems (Figure 11.14).

Despite the adoption of rice cultivation, shellfish gathering and hunting continued through Early Yayoi and beyond, and dryland crops were also important. Because of the changing discard patterns and the eventual disappearance of shellmounds, we struggle to say how much shellfish was eaten during the early historic period, but anyone acquainted with Japanese cuisine can attest to the prominence of shellfish in the diet even today. In one of the few studies on Yayoi diet, 175 edible plant species were recovered from 224 Yayoi sites,⁹⁶ including the dryland crops of barley, wheat and millets, beans, melon, beefsteak herb, and several fruit, nut and vegetable types. It is as much a mistake for the Yayoi period as on the continent to think that the cropping of today's staple East Asian species eliminated the need for a broad-ranging diet. Yayoi peoples did not live on rice alone.

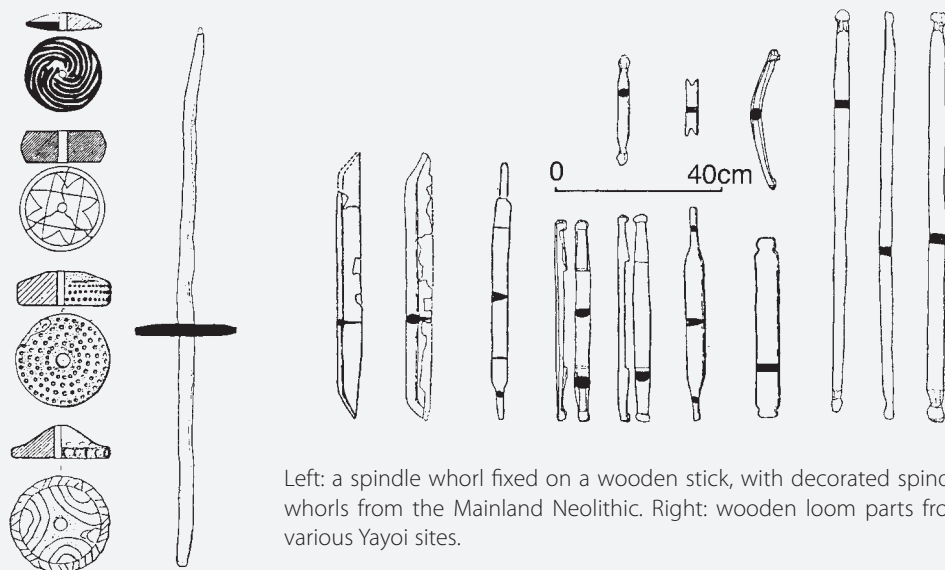
Craft advancements

Our former understanding was that the Yayoi period had bronze and iron from its very beginning, but now it is clear that wet-rice technology arrived first from the Peninsula, followed at the end of Early Yayoi by bronze and then iron (see Chapter 13). The Early/Middle Yayoi transition is dated by AMS ¹⁴C to around 400 BC but by artifactual relative chronology to 300 BC; the difference is as yet unreconciled.⁹⁷ Cast-iron imports were most likely continental imports – ultimately coming from Yan.⁹⁸ The forging of iron supposedly started in Middle Yayoi, but forging hearths are not known until the end of that phase.⁹⁹

Other continental technologies imported during Yayoi were

BOX 11.3 Early weaving technology

In the Jomon period, corded plant fibers were used in decorating pots, and many cleverly woven mats and baskets survive from waterlogged sites. Notched stones in the Chulmun (see Figure 5.10) might have been used as weaving weights for making mats.



Left: a spindle whorl fixed on a wooden stick, with decorated spindle whorls from the Mainland Neolithic. Right: wooden loom parts from various Yayoi sites.

Yayoi weaving technology was imported from the continent. Wooden loom parts (upper right), including thread and fabric beams and shuttles, have been recovered from Mainland Neolithic and Yayoi waterlogged sites. Thread was spun from bast fibers of ramie, hemp or kuzu vine on spindles fixed with spindle whorls (upper left), while cloth was woven on simple backstrap looms (right) or ground looms.



A bronze figurine from the Dian culture on the southwestern Mainland, contemporaneous with Middle Yayoi.

loom weaving (BOX 11.3) and lathe turning. Spindle whorls that accompany looms indicate the fashioning of broadcloth – different from Jomon textiles made from twisted fibers of hemp or deadnettle on a matting loom using warp weights (see Figure 5.10).¹⁰⁰ Lathes for woodworking probably used metal blades and enabled the production of finely turned bowls. Few wooden looms and lathes survive in the archaeological record, but some parts have been excavated from waterlogged sites.

Beginning in Early Yayoi but proliferating in Middle Yayoi were shell bracelets made from sub-tropical species obtained in the southern Ryukyu Islands. This trade link to the southwest required boat trips, as did connections to the continent. Some bracelets were processed in Okinawa, but many were brought into Kyushu for processing and then sent onward to Honshu, providing distinguished accoutrements for select individuals, perhaps shamans.¹⁰¹ The value of these shell bracelets is indicated by their copying into bronze in later Yayoi, and then in beadstone in the Kofun period. Shell versions gradually dropped out of the ornamental repertoire, but shell pendants and bracelets have been found in Hokkaido Epi-Jomon sites. Both Hokkaido and the Ryukyus remained outside the Yayoi agricultural sphere, though connected by these economic exchanges.

Jomon resistance to wet-rice agriculture

The story of the spread of rice agriculture through the Japanese archipelago would be incomplete without consideration of the northeastern Jomon reaction to this new technology. Tohoku hosted the densest settlement throughout the Jomon period, and in Final Jomon, intensive fishing along the eastern Tohoku coast is indicated by multitudes of excavated fish hooks.¹⁰² Deep-sea fishing is also attested by toggle-head harpoons and detachable-shaft bone hooks. Temperate deciduous forests of the northeast had always been more environmentally productive than the southwestern evergreen oak forest; together with the salmon runs in the fast streams from mountain to coast, Tohoku had abundant resources for local exploitation. Thus, even when an agricultural lifestyle was offered on their doorstep, northeastern Jomon responded with increased community rituals (even tooth ablation, BOX 11.4) to bind settlements together and maintain traditional lifeways.¹⁰³

Final Jomon peoples in Tohoku shared a fairly homogeneous material culture known alternatively as Kamegaoka (from the type site) or Obora (from the pottery type). It is renowned for its elaborately decorated objects (Figure 11.15), many made of organic materials that were preserved in the wetland Kamegaoka site. Excavations

BOX 11.4 Tooth extraction among the Jomon and Yayoi

Intentional extraction (ablation) of upper lateral incisors was a custom that developed in the East Coast Beixin culture around 5050 BC and continues to the present day among the Gelao ethnic minority group in China's southern Guizhou province.

The practice appeared in the archipelago from Early Jomon (5050–3520 BC), perhaps (along with split earrings) as a result of communications between the Jomon and Shandong Neolithic peoples. In Late to Final Jomon (2–1 m BC), lower incisors and canines were targeted in addition to the ongoing tradition of upper jaw extractions. This latter phase saw almost the entire adult population throughout the archipelago practicing tooth ablation; the custom was carried on into the Yayoi period, with modifications, as noted at the Doigahama site among others.

Five different extraction patterns for the lower jaw were recognized, with two patterns dominating: 4I (extraction of four lower incisors) and 2C (two lower canines). These patterns were initially interpreted as reflecting postmarital residential rules, but strontium (Sr) isotope analyses of the teeth contradict this residential hypothesis. In BOX 5.3, we discussed carbon and nitrogen isotopes that reveal differential contributions of terrestrial and marine, plant and animal resources. Strontium isotope levels in teeth are consistent with strontium in the environment where the person grew up; if a person moves to another area later in life, the strontium levels in their teeth might not match their new environment, and they can be identified as non-locals. (The terms 'immigrants' or 'migrants' are often used in this context, but this doesn't necessarily imply continental immigration rather than regional migration.)

Recent analyses of teeth from Late to Final Jomon shellmounds revealed that 1) at Yoshigo, both local (64%) and non-local (36%) peoples displayed both major patterns of tooth ablation, and 2) at the Inariyama shellmound, the 4I and 2C patterns of locals were related to diet regardless of sex or local or non-local status of the individual, as can be seen below. Further analysis of the Yoshigo remains discovered that the dietary differential existing between 4I and 2C groups at Inariyama was not present at Yoshigo. Instead, the tooth ablation patterns are attributed to age-defined attainment of kin-based social status.

	local Sr	non-local Sr	4I (4 incisors)	2C (2 canines)
Yoshigo	64%, 4I + 2C	36%, 4I + 2C	homogenized diet	
Inariyama	4I ♀ ♂ (7) 2C ♂ (6)	4I ♀ (2) 2C ♂ (2)	locals: more terrestrial	locals: more marine

Thus do modern investigative techniques provide new interpretations of old data and reveal far more detailed variability in the prehistoric record than hitherto imagined.

there since the 19c have produced lacquered red and black baskets, lacquered ceramics, basketry, and bone and wooden objects. Obora pottery is highly refined and very unlike the heavy, high-relief pottery of some earlier Jomon phases; Final Jomon decorations include zoned cord-marking and exquisite surface carving.

New additions to the ritual repertoire in Final Jomon were clay slabs, carved stones, and stone rods.¹⁰⁴ The latter may have knife/

Figure 11.15 Late Jomon creations

The teapot concept may reveal continental connections, but the figurines are the perfection of a long Jomon tradition. Both the 'goggle-eyed' figurine (right, 35cm) and sitting one (lower right, 20cm) exhibit clothing motifs, hairstyles, and ornaments. Carved stones (below) and clay tablets are enigmas.



sword referents or just act as phallic symbols. Masks suggest active ritual performances (see Figure 6.12); one mask has holes for inserting beard hairs, and one consists only of facial parts that are tied onto the head. The latter is reminiscent of Zhou period face-part jades for burials – another possible indication of independent communications with the continent from this far-off land.

Scholars are divided as to whether people in the later Jomon phases lived in egalitarian or ranked social systems. A review of several studies was inconclusive except for the observations 1) that 10% of Late and Final Jomon burials yielded personal ornaments and specialist items such as fine lacquered pottery; 2) that Final Jomon burials contain about 50% of all known Jomon grave goods; and 3) that there was a trend for young people to be buried with grave goods in Final Jomon.¹⁰⁵ The last point often indicates social ranking (because juveniles receive the rank of their parents rather than earning it themselves), but the degree of differentiation was minimal.

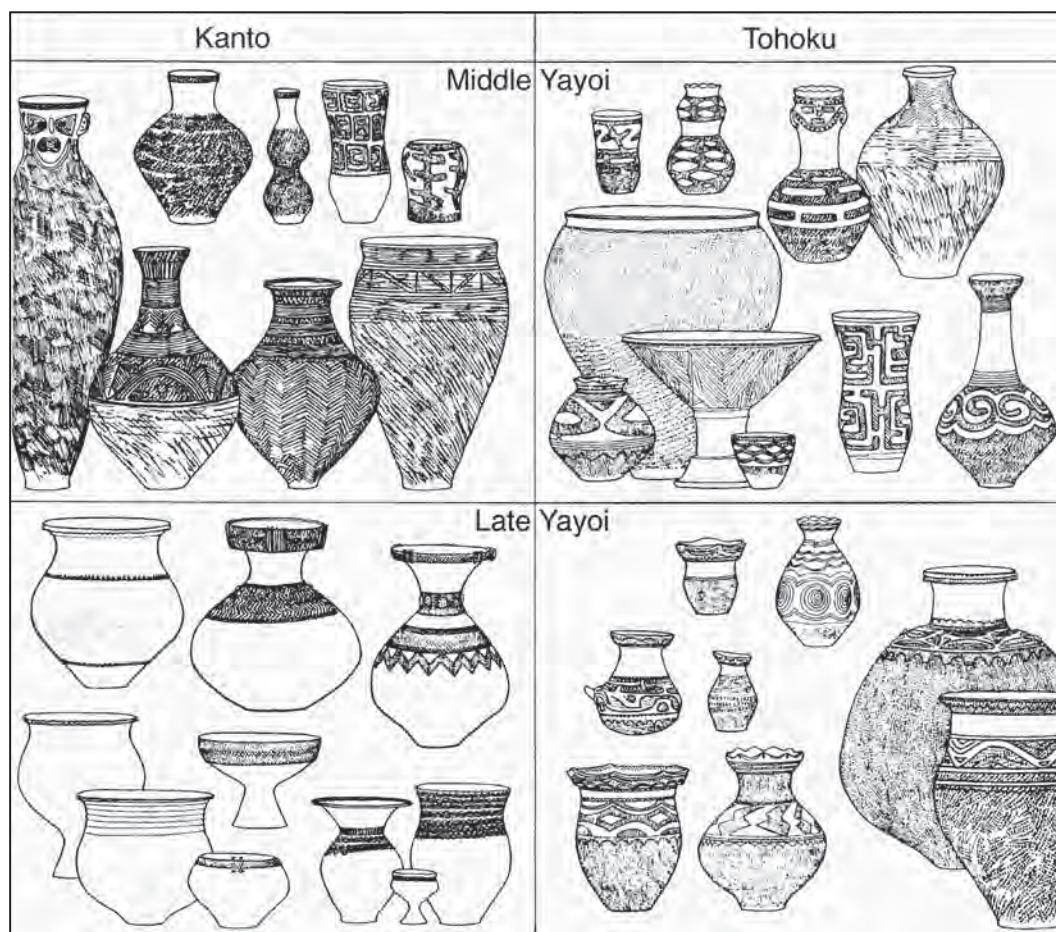
Thus it seems that pressure from the west via migrant agriculturalists stimulated the elaboration of material culture and ritual activities, perhaps involving shamans, but hierarchical societies did not arise.

Despite the early forays of Yayoi peoples into Tohoku, the Yayoinisation of Tohoku peoples occurred only in Middle Yayoi. The ceramic repertoire is lacking Early Yayoi pottery characteristic of the west (see Figure 11.13); only from Middle Yayoi onward are western shape-types adopted, but even these are decorated with traditional Jomon cord-markings, with zoned cord-marking especially prevalent in Tohoku (Figure 11.16).

In Middle Yayoi, the Jomon peoples of northeastern Honshu adopted new crops into their horticultural repertoire and became Yayoi farmers. The culture of those residents of Hokkaido who did not 'become Yayoi' is termed Epi-Jomon or Zoku-Jomon, which was then succeeded by the Satsumon culture in the Nara period (710–794 BC). The northeast was outside the administrative jurisdiction of the

Figure 11.16 Middle and Late Yayoi pottery of Tohoku

Surface decoration retained zoned cord-marking, and a unique bottle shape marked the northeast. Note there is no Yayoi pottery tradition in Tohoku in Early Yayoi; Jomon pottery-making continued until Middle Yayoi.



Nara Court, and the peoples there were referred to as Emishi – not an ethnonym but merely implying ‘outsider’.

Place-names that can be assigned to the language of the historic Ainu aboriginal population of Japan occur from Sendai City northward.¹⁰⁶ According to the material culture record, the Ainu ethnic group emerged in the 12c AD, coincidentally with a change of designation from Emishi to Ezo in the historical records.¹⁰⁷ They were eventually pushed out of Tohoku, and from Hokkaido they extended north into Sakhalin and the Kurile Islands. The ethnonym Ainu (‘human’ in the Ainu language) appears in written documents for the first time in the 17c, when they traded with the northern Matsumae clan. It is clear from DNA studies that the Ainu preserve the Jomon genotype, though they mixed with Okhotsk peoples descending from the north (see BOX 11.2). They might also derive some of their culture from the northeastern Jomon, as the fabric decoration on their robes very much echoes the designs on pottery with zoned cord-markings. Since pottery does not substantially deteriorate in the ground, it is possible that the casual discovery of some of this zoned cord-marked pottery by later inhabitants in the northeast inspired them to reproduce patterns and shapes in their chosen media.

Further reading

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Chapter 12

The Making and Breaking of Empire

(350 BC–500 AD)

Qin, the Unifier

By 221 BC, after the Yayoi expansion in Japan and after decades of warfare on the Mainland, the Late Zhou state of Qin had conquered its six major rivals and proclaimed a unified dynasty. This was facilitated by administrative reforms in the mid-4c BC that strengthened the state. However, Qin's glory was short-lived, the first empire collapsing after only 15 years.

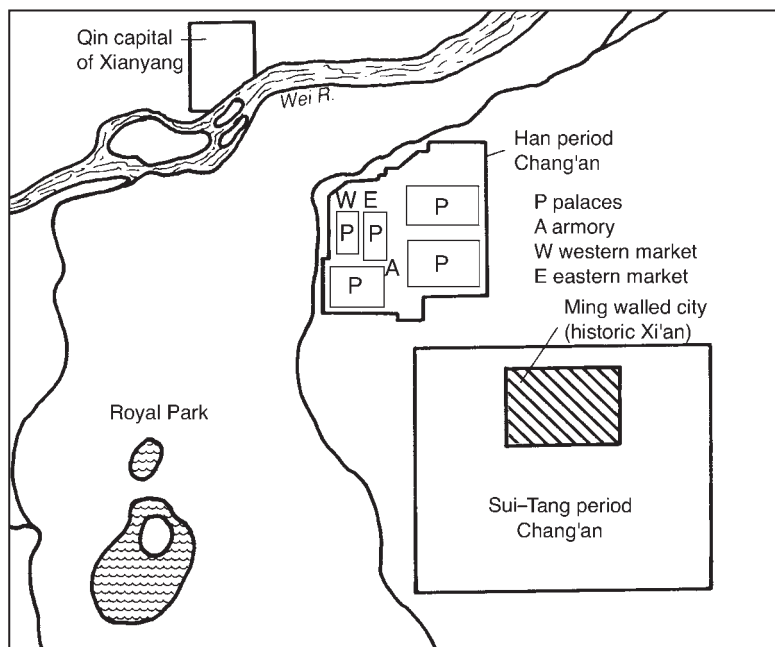
Warring states reforms¹

Instigated mainly by one man, Shang Yang, but following trends in all Zhou states, reforms revolutionized the Qin legal code, dissolved the aristocratic class and its ritual system based on bronze vessels, established a meritocratic ranking system allowing participation of the lower classes in state administration and military, extended land registration and taxes, and instituted a nested territorial system of commanderies and counties that bypassed the old aristocracy and brought land under direct state control. Qin reconstituted itself as a war machine, targeting the entire male populace for conscriptive service.

The conquest of the Ba and Shu peoples in the Sichuan Basin to the southwest between *ca.* 441 and 316 BC provided extra agricultural resources to support Qin's subsequent takeovers of individual Zhou states beginning in 312 BC. Given that warfare was endemic in Late Zhou (the Warring States period), Qin was not alone in fighting its Zhou neighbors or outlying pastoralists, but it was the most successful. A special ethos of Qin identity different from traditional Zhou is hypothesized to have consolidated all levels of the Qin populace and supported major military campaigns. This identity was a throwback to Qin's alleged origin as a 'barbarian' tribe, which set it against all other Zhou states. This served Qin well during the unification wars but was not suitable as an ideology of empire as being 'united under heaven', thus possibly contributing to the short life of the Qin Dynasty (221–206 BC).²

Figure 12.1 Dynastic capitals of Qin, Han and Tang

North of Xi'an in the Wei River valley stood Xianyang, the last capital of Qin after several relocations around the river basin in the Zhou period. South of the river were two cities named Chang'an – one forming the capital of the Early Han Dynasty, the other built in the Sui Dynasty (581–618, 84km²) and in use through Tang. The Late Han Dynasty capital was at Luoyang, about 200 km east of Chang'an. The Ming Dynasty walled city (hatched, 12km²) forms the core of modern Xi'an. The Royal Park of the Qin emperors focused around an artificial lake, used in the Han period both as a reservoir for Chang'an and as a naval training ground (in this land-locked Wei River basin!).



United China

With the establishment of the Qin Dynasty, for the first time it is possible to talk in terms of a unified 'China' (the name itself being derived from Qin). The territory of this newly consolidated and expanded state was divided into 36 commanderies,³ occupying the whole of the northern Mainland above the Yangzi River and governed from the new capital at Xianyang in the Wei River valley (Figure 12.1). The First Emperor of Qinⁱ expanded his authority by building a system of roads radiating from Xianyang and a canal to link rivers in the south, and by establishing local commanderies. A new Great Wall was built beyond the earlier Zhou walls, incorporating the entire Great Bend of the Yellow River and stretching across the Northern Zone to the Korean Peninsula;ⁱⁱ it is estimated to have taken more than 300,000 people five years to complete.⁴

The military preparedness of the imperial forces is extravagantly illustrated by the ceramic statues that were buried *en masse* in orderly rows in pits near the First Emperor's mounded tomb outside the modern city of Xi'an (Figure 12.2). As one of the most spectacular archaeological discoveries of the 20th century, this 'terracotta army' is now well known through several books and many exhibitions

ⁱ Known as Qin Shihuangdi, *huangdi* meaning 'emperor', and *shi*, 'the First'.

ⁱⁱ Previously it was thought that pre-existing walls were merely linked together (CKJ: 193).

abroad.⁵ These life-size figures (mean height 177.7cm)⁶ facilitated the first large studies of the styles and construction of body armor (Figure 12.3),⁷ of which only miscellaneous pieces made of leather or metal had previously been recovered. Research on the production technology for arrowheads and bronze trigger mechanisms and bolts for cross-bows buried with the terracotta warriors reveals a cellular organization of workshops overseen by supervisors; each workshop made and contributed bundles of weapons to be interred with the ceramic sculptures.⁸

Interestingly, the sudden manufacture of large ceramic figures seems to have been stimulated by Hellenistic sculptures of Central Asia following the conquests of Alexander the Great.⁹ As part of the Qin Emperor's "gigantism",¹⁰ he had weapons collected and recast into twelve huge bronze statues, one of which lasted into the 4c AD, though no illustrations survive.¹¹ Not only were such statues without precedent in China, neither did they give rise to a new sculptural tradition, though

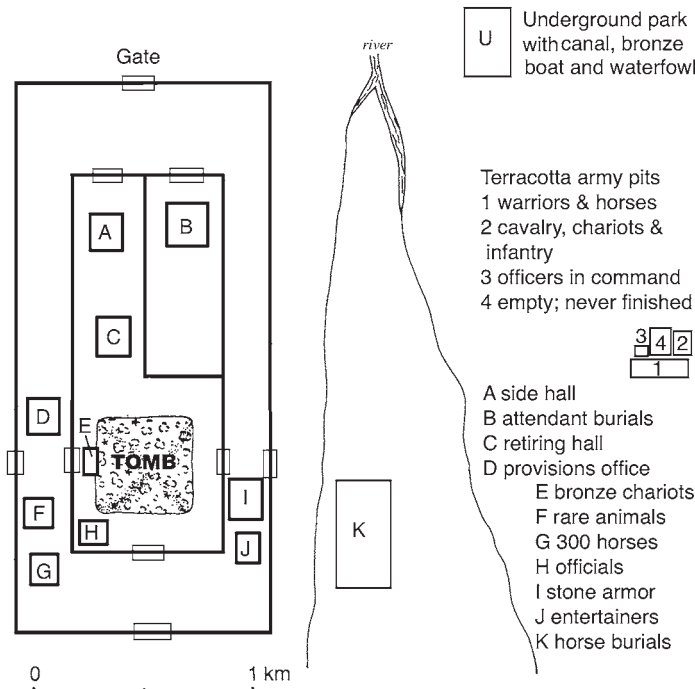


Figure 12.2 Qin Shihuangdi's tomb in double compound and associated pits

Pit E left yielded two half-life-size bronzes – a chariot (above) and carriage – each drawn by four horses. Their position between the tomb mound and western gate of the inner compound demonstrates their readiness to serve the Emperor on tours of his realm. Several pits yielded members of his entourage, but the main tomb chamber remains unexcavated.

Figure 12.3 Qin Shihuangdi's terracotta army

The pits accompanying the First Emperor's tomb have yielded more than 7000 figures. Shown here are officers and soldiers, some wearing lamellar armor, some holding absent weapons. Sizes vary by rank, the tallest reaching 195cm. The variety of hairstyles and facial features suggests the presence of several ethnicities.



smaller figurines placed inside tombs became a feature of the succeeding Han period.

Strategies for unification were pursued in parallel with military conquest and administrative consolidation. Some of the most familiar and numerous united-Qin artifacts are sets of graduated bronze or ceramic measuring cups and bronze or iron weights. These usually bear inscriptions of edicts by the First Emperor, including his exhortation for standardized measurements: “When they are not uniform or are in doubt, make them clear and make them uniform.”¹² He banned the spade and knife coinage issued by the previous Zhou states, extending usage of the Qin coin (see Figure 10.12) throughout the Empire, and he had a new script devised for administrative purposes. The latter “led to the founding of an imperial academy intended to control the dissemination of texts and the interpretation of their meanings.”¹³

Numerous causes led to Qin's downfall. Foremost among these appear to be bureaucratic micro-management and undertaking several massive construction projects at once.¹⁴ Even in Late Zhou, Qin had been constructing gigantic buildings at its capital of Xianyang: one building has been conceptually reconstructed in a drawing as a three-story, 17m-tall ‘terrace pavilion’ on a high, tamped-earth platform 45 × 60m.¹⁵ With the achievement of peace, the peasant army ‘war machine’ was reassigned to construct the Great Wall, canals and roads, the First Emperor's tomb, and up to 700 temples and palaces for the 120,000 Zhou aristocrats forcibly rehoused in Xianyang. With taxes running at 60% and the populace suffering

under *corvée* labor, a peasant rebellion broke out, soon joined by disenfranchised Zhou elite, especially in Chu.¹⁶ These local uprisings brought an end to Qin.

Despite his brief reign, the First Emperor nevertheless managed to establish the infrastructure for a united China. His reforms underlay development and expansion in the economic, military and administrative realms in the succeeding Han period.

The Han Dynasty

Establishment of unified rule

The Han achieved what Qin did not: centuries of rule over a unified territory that included almost the entire China Mainland plus part of the northern Korean Peninsula. Of course, there were Mainland territories outside the reach of the Han Dynasty, and within the Han period (206 BC–220 AD), there were dynastic transitions: Western or Former Han (206 BC–8 AD) and Eastern or Late Han (25–220 AD) sandwiched a very short interregnum of rule by WANG Mang, the Xin Dynasty (9–23 AD). The first emperor of Han, LIU Bang, was a local sheriff under Qin who rose in power during the anti-Qin rebellion and was enthroned as Emperor Gaozu (r. 202–195 BC). His family was from the former state of Chu; thus Han rule combined Qin innovations with Chu cultural sensibilities.¹⁷

Given his humble birth, Gaozu looked favorably on promotion by merit – even though he enfeoffed relatives to rule the ten new kingdoms he carved out of former eastern Zhou states. Emperor Wuⁱⁱⁱ (r. 141–86 BC) further supported merit as a system of advancement by promoting the Confucian classics as the sole texts of the Imperial Academy.¹⁸ It was not until the WANG Mang interregnum, however, that Confucianism became the ruling philosophy; in later history, the proliferation of such academies allowed for greater social mobility via study of the classics by any student whose families were wealthy enough to support the student over many years as a non-earner.

The internal divisions of empire varied over time,¹⁹ with a general distinction between ‘principalities’/‘kingdoms’ and ‘commanderies’ – the former generally ruled by feudatory lords (including imperial relatives), the latter by state appointees. Throughout the Han, there was a nominal division between western and eastern regions; the western region beyond the Huanghe Corridor came to be referred to as the Guanzhong, which included the old Zhou homeland of Zhouyuan.

Tension between the court and regional lords resulted in a rebellion

ⁱⁱⁱ Often called Wudi in English sources, *di* meaning ‘emperor’.

in 154 BC that was put down by the imperial forces. After the reign of Emperor Wu, 'landlordism' began to emerge as a major problem, with the elite buying up land from peasants ruined by taxes.²⁰ Thus began the rise of great families and regional clans who were dominant in ruling the Late Han Dynasty. The locations of the Early Han capital at Chang'an and the Late Han capital at Luoyang correlate with the shift of power from the imperial family and the Guanzhong elite to the eastern clans after the turn of the millennium. By the end of Han, the country had disintegrated into warlordism and finally split into three new countries, Wei in the north (Yellow River valley), Wu in the southeast (Yangzi River drainage), and Shu in the southwest focusing on the Sichuan Basin.

The Han period was fully historical, with the vagaries of battles, kingships, tax regimes, military expeditions and so forth documented in great detail. But Han is also renowned for its artistic material culture informing on the activities of daily life.

Imperial capitals

Chang'an, the Early and Middle Han capital, was built south of the Wei River (see Figure 12.1), while Qin's now defunct capital area of Xianyang became part of the royal cemetery on the plains across the river to the northwest. Here, the Early Han emperors found resting places in large earth-mounded tombs – several of which have been excavated, revealing spectacularly rich contents.²¹ In 25 AD, Chang'an suffered a thorough sacking during the overthrow of usurper WANG Mang, ruler of the Xin Dynasty, and a new, much smaller capital was established farther east at Luoyang (Figure 12.4). While Chang'an lay near the old Royal Zhou and Qin capitals, Luoyang occupied territory anciently belonging to Erlitou, then to Early Shang and later to Royal Zhou. It is interesting how these capital areas kept being revived by successive states.

These two Han capital cities have undergone considerable archaeological research, so that their layouts are known in fair detail.²² Neither Chang'an nor Luoyang conformed to the Zhou ideal of a capital: the *wangcheng* (lit. 'royal enclosure'), described in the *Rites of Zhou* (*Zhouli*) as "a square with sides of 9 *li*, each side having 3 gateways. Within the capital there were 9 meridional and 9 latitudinal avenues, each of the former being 9 chariot-tracks in width."^{iv} The palace at the center included an Ancestral Temple and an Altar of the Earth, while a market stood behind the palace.²³

^{iv} Wheatley 1971: 411; one Zhou *li* is said to measure "more than 1364.7 feet, English measure" (Creel 1970: 325, fn27).

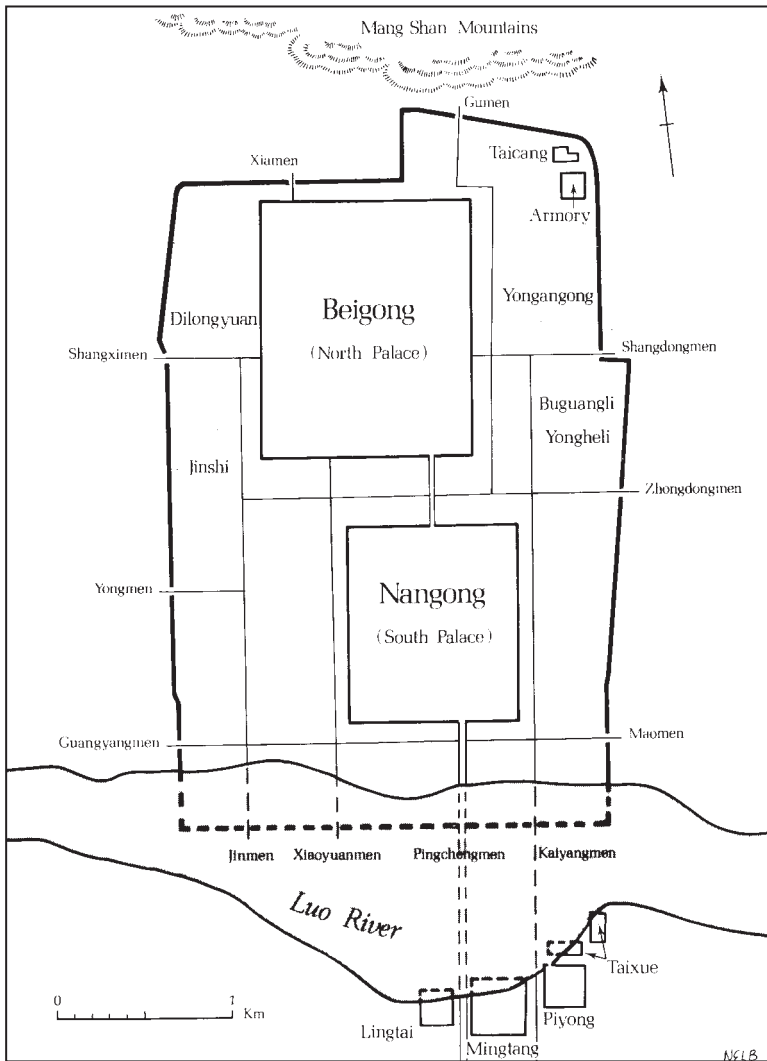


Figure 12.4 The Luoyang capital of Late Han

No Zhou capital except perhaps Qufu in Confucius's own state of Lu actually materialized this ideal,²⁴ and both Han capitals also diverged from it. The layout of Chang'an was influenced by the river; its walls were oriented to the compass and pierced by twelve gates each topped by a watchtower, "a more prominent symbol of authority than the surrounding wall".²⁵ Perhaps because Chang'an arose piecemeal during three phases of construction, it evinced less attention to interior zoning; the grid of avenues was seriously disrupted by the placement of several palaces, but the main markets remained in the north as in the Zhou capitals.

The eastern market sold retail goods, while the western market was a manufacturing center occupied by a government-owned mint

and blast furnaces for smelting cast-iron (see BOX 10.1).²⁶ It is indicative of a market economy that coins were not hoarded for burial but spent in the marketplace; only imitation coins were normally placed in Early Han tombs, though real coins were increasingly interred in Late Han.²⁷ A new technique of heating cast-iron to make 'malleable cast-iron' was developed in the 4–3c BC, so that from the 3c BC onward iron featured in a great many utilitarian goods and agricultural tools.²⁸ The invention of the moldboard plow especially led to great increases in agricultural productivity (and consequent population increases).²⁹ Iron and salt production (Figure 12.5) were organized as state monopolies in 117 BC by Emperor Wu; ceramic pots were replaced by iron pans for salt-making in the upper Yangzi at this time,³⁰ indicating symbiosis between these two industries.³¹ At least 40 ironworking sites dating to Han have been excavated, mostly along the Yellow River but several in outlying regions.³² The monopoly lasted until the warlord period of Late Han, when most manors had their own production facilities.³³

Comparison of capital layouts reveals significant differences between Chang'an and Luolang. Despite their names, Chang'an's western (W) and eastern (E) markets were located together in the northwestern corner of the capital (see Figure 12.1); otherwise, five palaces (P) and an armory (A) accounted for most of the space in the capital. In Luoyang, the palaces lay on a north–south axis, with several markets positioned both within and beyond the city walls, accessible through twelve gates. Although Luoyang (2.7 × 3.4km)



Figure 12.5 The Han period salt industry

A rubbing of a pictorial tile from a 2c tomb illustrates salt-making in the Sichuan Basin: drawing water from a well (left), evaporating it at a hearth (right), and transporting the salt by foot across mountains in which hunting was still pursued.

BOX 12.1 The spread of Buddhism

Buddhism was an incidental import that accompanied goods from India and in time changed the very nature and philosophy of Chinese life, more than could mere material objects. In contrast to Confucianism, which was very much tied to this world through its function of regulating interpersonal relations for the good of the state, the essence of Buddhism was a rejection of this world and its trappings in order to break out of what was believed to be the cycle of rebirth caused by karma. Buddhism developed from the teachings of Siddhartha Gautama, who was born in 563 BC to an aristocratic family in northern India (now Nepal) but gave up his position and status to seek enlightenment. The teachings of this historic Buddha took hold within the small states of northern India and Central Asia in the late 1st century BC.

The Wheel of the Law (*dharmachakra* in Sanskrit), shown here in a late 1st century AD sculpture from Thailand, encapsulates the teachings of Siddhartha. The wheel, a solar symbol of earlier Hindu mythology but here modeled after a chariot wheel, was one of several symbols chosen to represent the historic Buddha. Only when Buddhism met the Greek tradition of statuary was the Buddha depicted in human form.

In the Han period, Buddhist monks who accompanied the trading caravans, especially from the Bactrian state of the Kushan empire, established places of worship en route and in the foreign merchant communities of the Han capitals. Buddhist cave temples, such as those at Bamiyan in Afghanistan, were first constructed along the northern desert route in the Tarim Basin in the Late Han period.



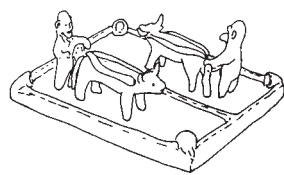
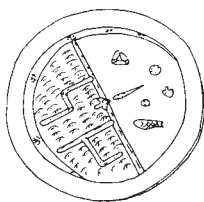
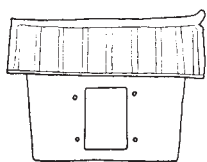
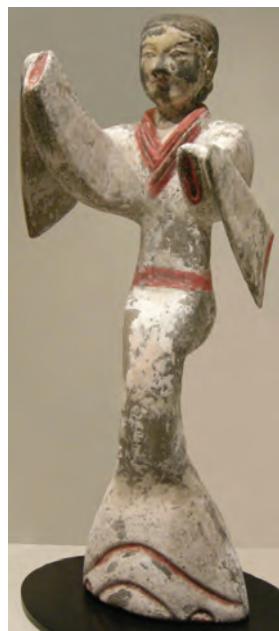
was smaller than Chang'an (6×7.6 km), it had fewer palaces and so could accommodate more merchant and aristocratic housing. It was a cosmopolitan place, with new ideas such as Buddhism arriving from India during the 1st century AD (BOX 12.1).

Han burial innovations

Han has been called “the most archaeologically dependent” of all the historical Chinese dynasties, due to the extensive information derived from the pictorial art that became standard in Han tombs.³⁴ The sheer variety of objects – pictorial bricks, ceramic and wooden models, silk paintings, wall paintings, stone picture panels – provided multiple venues for depicting portraits, landscapes, legends, histories, and cosmological beliefs.

Figure 12.6 Models for the afterlife

Han figurines portray a variety of humans and animals, houses and hearths, wells and fields, granaries and tools, weapons and carriages. The painted lady (right) appears to be dancing, with details of her hairstyle, make-up and costume vividly portrayed. Some human figures had detachable wooden arms and wore silk costumes; these organic materials have largely decayed, yet some wooden figures have survived. Models of houses were particularly diverse, some with a courtyard layout including walls, gates, watchtowers and gardens, and others depicting multi-eaved or multi-storied houses (left). Lead-glazed wares (below) illustrate a simpler life in a small house adjoining paddy field and fish pond with on-going plowing activities. Rather than the inclusion of wealth *per se*, the figurines represent the deceased's lifestyle – perhaps in preparation for the next life.



Among ceramics, lead-glazing is new and painted earthenwares resurgent; they include both vessels and burial figurines or models that shed light on daily life (Figure 12.6). Unlike the life-size Qin terracotta warriors, Han figurines were only one-third life-size: aristocratic figures, soldiers and cavalry have been recovered from tombs in the royal cemetery in great numbers. Ceramic models of houses and granaries, as well as stone panels carved in *bas-relief*, incorporate architectural features that would otherwise remain unknown.³⁵

In the grave goods repertoire, the disappearance of ritual bronze vessels and the growing importance of iron tools and weapons coincided with a new fad for lacquered objects and household bronzes. The latter included lamps and mirrors in various styles (Figure 12.7). As cosmetic items, the mirrors were often wrapped in silk and stored in lacquer boxes, but cast decorations on the mirrors' reverse side also suggest some cosmological significance: the TLV design may represent patterns on an astrological divining *liubo* board (Figure 12.7-E).³⁶ The TLV markings on the board occur also on the TLV mirrors, named for their resemblance to the Latin alphabet.

Han burials underwent radical changes in construction through

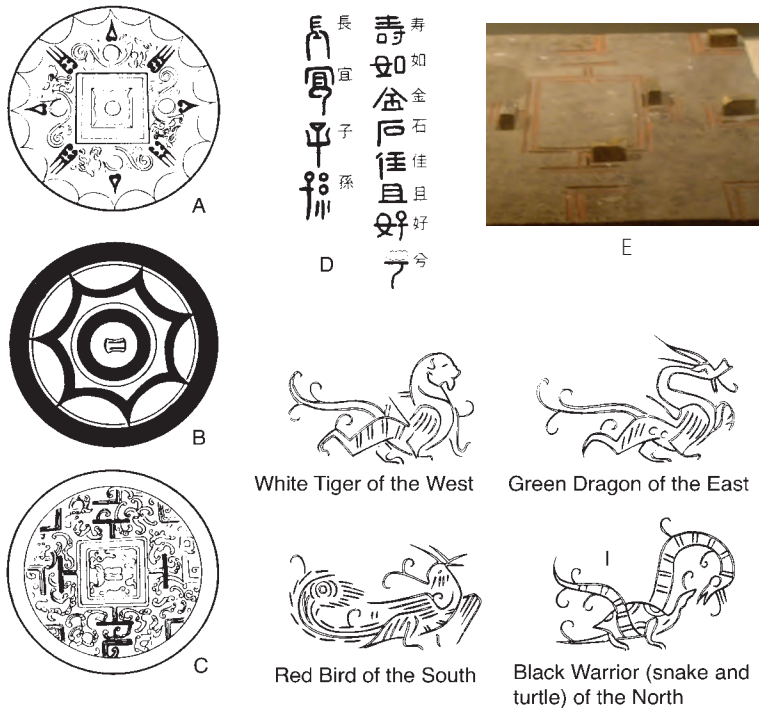


Figure 12.7 Han mirror designs

Mirrors are important dating tools via their cast decorations on the reverse side, which are usually laid out concentrically. Late Han saw a major change in design execution: previous mirrors bore fine linear relief decoration, often with contrasting areas of raised, flat relief. The adoption of high relief on mirrors allowed for the casting of more realistic portrayals. It is debatable how much of a cosmetic function mirrors had in East Asia. In the Zhou period, it was believed that the mirrors themselves had magical powers to ward off evil and ensure a fruitful life. Han period mirrors not only functioned as valued political gifts but also had cosmological significance. Mirrors were often kept as heirlooms and, like coins with long periods of usage, were often deposited in burials long after their manufacture.

Late Zhou motifs (see Figure 10.8) lasted into Early Han when they were joined by bossed mirrors decorated with star and cloud patterns (A) and by 'Inner Petal Ring' types (B); the latter often bear an inscription (D) around the central knob reading "May your family line be long-lasting." TLV mirrors (C) reflect the markings on the *liubo* board (E). The animal symbols of the four directions (below) are often incorporated into mirror design.

time as more elite families were able to provide complex burial facilities for their dead. The early shaft tomb, equipped with a nested wooden chamber (Figure 12.8), was eclipsed by the horizontal chamber tomb – initially cut into a cliff or hillside as a cave. These cave chamber tombs had multiple rooms, some as large and complex as a palace but eventually reducing to a single axis from corridor entry to coffin with symmetrical flanking chambers.³⁷ From middle Early Han, these chambers came to be lined with small solid bricks (like ours today) or very large hollow bricks (Figure 12.9).³⁸ The latter were squarish ceramic tubes, often quite long, which were used like modern concrete blocks. Most hollow bricks, if decorated, bear impressed geometric designs and some are painted; some chambers have scenes painted directly onto solid bricks without using plaster.³⁹

Two major changes enabled by these more architectural structures were a proliferation of different rooms and chambers – providing living space for the deceased as well as housing for the necessary accoutrements – and an opportunity to create paintings on the walls and ceiling. The tomb itself thus became a residence for the soul, expressed in a new belief in "post-mortem immortality".⁴⁰ The tomb also replaced the lineage temple as the focus for ancestral rites.

Separate shrines were built in front of tombs for offering rituals

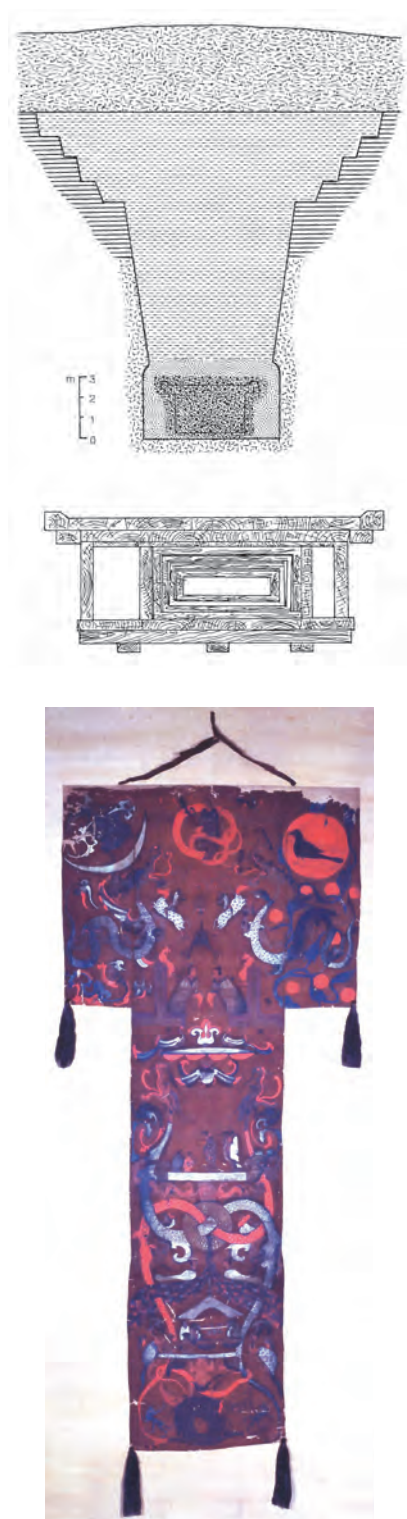


Figure 12.8 The Mawangdui Tomb of Lady Dai

The old Chu territory mixed new with old, well represented by the burial of Lady Dai (d. 163 BC), near Changsha City. Her unlooted shaft tomb (above left) was 15m deep, covered by an earthen mound 50–60m in diameter. The wooden chamber (shown in section, below left) was enveloped first in a thick layer of white clay, then in a thinner charcoal layer – not only to preserve the contents but to keep the soul safely away from the living. Such graves were designed to be inaccessible once sealed. The compartments between the inner lacquered nested coffin and outer chamber held more than 1000 grave goods: over 100 lacquered bowls (above center) and eared cups (above right), many lacquered vanity boxes, ceramics, musical instruments, game boards (as for *liubo* in Figure 12.7), bronzes with gilt surfaces and jade inlay, weapons inlaid with gold, bronze and silver belt hooks, beads, and a multitude of food offerings with exotic spices.

The preserved organic materials were astounding: maps and paintings on silk, including a T-shaped banner (left); texts written on bamboo and wooden strips, including an important astronomical treatise; many kinds of silk cloth; and the woman herself! Almost perfectly preserved, Lady Dai had been wrapped in 18 layers of silk and linen and sealed in a water-tight coffin. An autopsy, shown in the BBC Chronicle series in 1982 titled “China: treasures of the Cultural Revolution”, revealed that she had died of a heart attack in her mid-50s but also had liver disease, diabetes and high blood pressure.

and sacrifices to deceased ancestors. In Early Han, these were wooden structures, but in Late Han they often were constructed of stone slabs. The Wu Liang family shrines were furnished inside with stone panels carved in *bas-relief* (Figure 12.10), depicting an artistic historiography of ancient sovereigns, eminent women and virtuous men plus realms of paradise.⁴¹

Pictorial subject matter in the tombs ranged from daily activities, such as salt-making, to the ethereal. The painted silk banner in the Mawangdui Tomb allegedly shows Lady Dai ascending to heaven, while the triangular brick from the British Museum may illustrate immortals in various carriages, flying through the air (see Figure 12.9).⁴² Themes of tomb painting generally

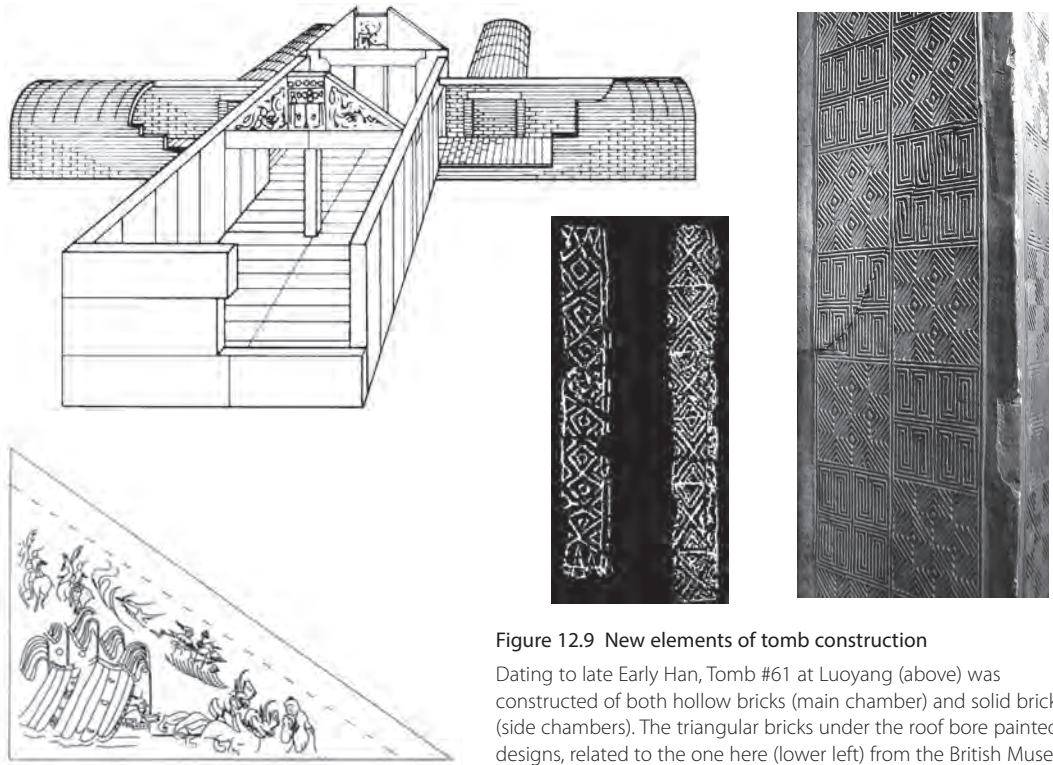


Figure 12.9 New elements of tomb construction

Dating to late Early Han, Tomb #61 at Luoyang (above) was constructed of both hollow bricks (main chamber) and solid bricks (side chambers). The triangular bricks under the roof bore painted designs, related to the one here (lower left) from the British Museum. Bricks, both hollow (right) and solid (center rubbings), could be decorated with mold-impressed or stamped designs. Narrative tiles (similar to Figure 12.5) often lined the tomb interior.

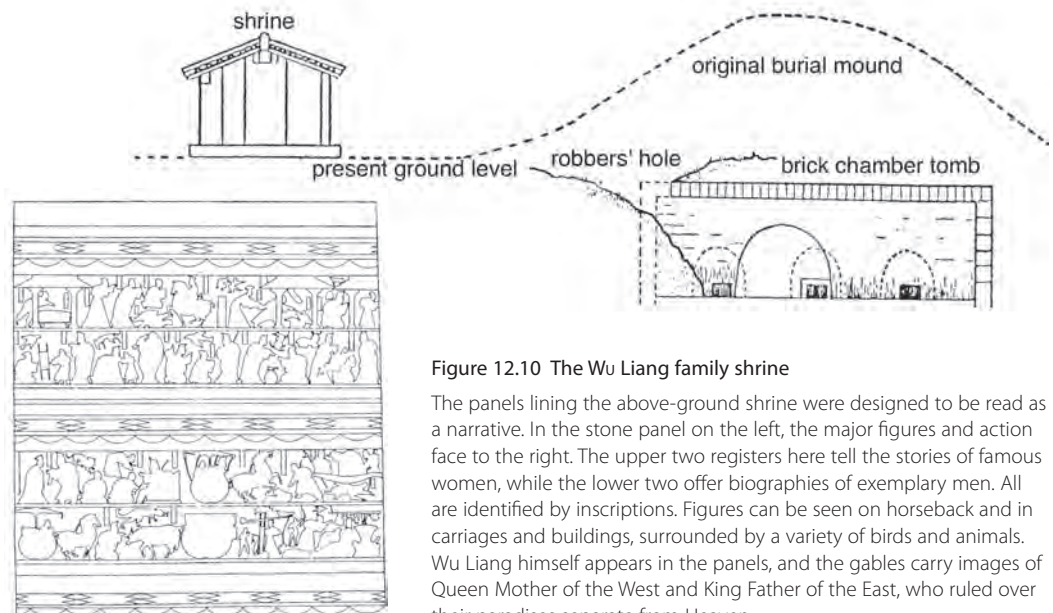


Figure 12.10 The Wu Liang family shrine

The panels lining the above-ground shrine were designed to be read as a narrative. In the stone panel on the left, the major figures and action face to the right. The upper two registers here tell the stories of famous women, while the lower two offer biographies of exemplary men. All are identified by inscriptions. Figures can be seen on horseback and in carriages and buildings, surrounded by a variety of birds and animals. Wu Liang himself appears in the panels, and the gables carry images of Queen Mother of the West and King Father of the East, who ruled over their paradises separate from Heaven.

fall into three categories:⁴³ landscapes and life endeavors, including portraits of the deceased; celestial images and spirits such as the directional deities; and various paradises populated by immortals like the Buddha or Queen Mother of the West of Daoism, who began to be depicted in 1c AD tomb art in combination with the three-peaked Mt. Kunlun, one of the “lands of deathlessness”.⁴⁴

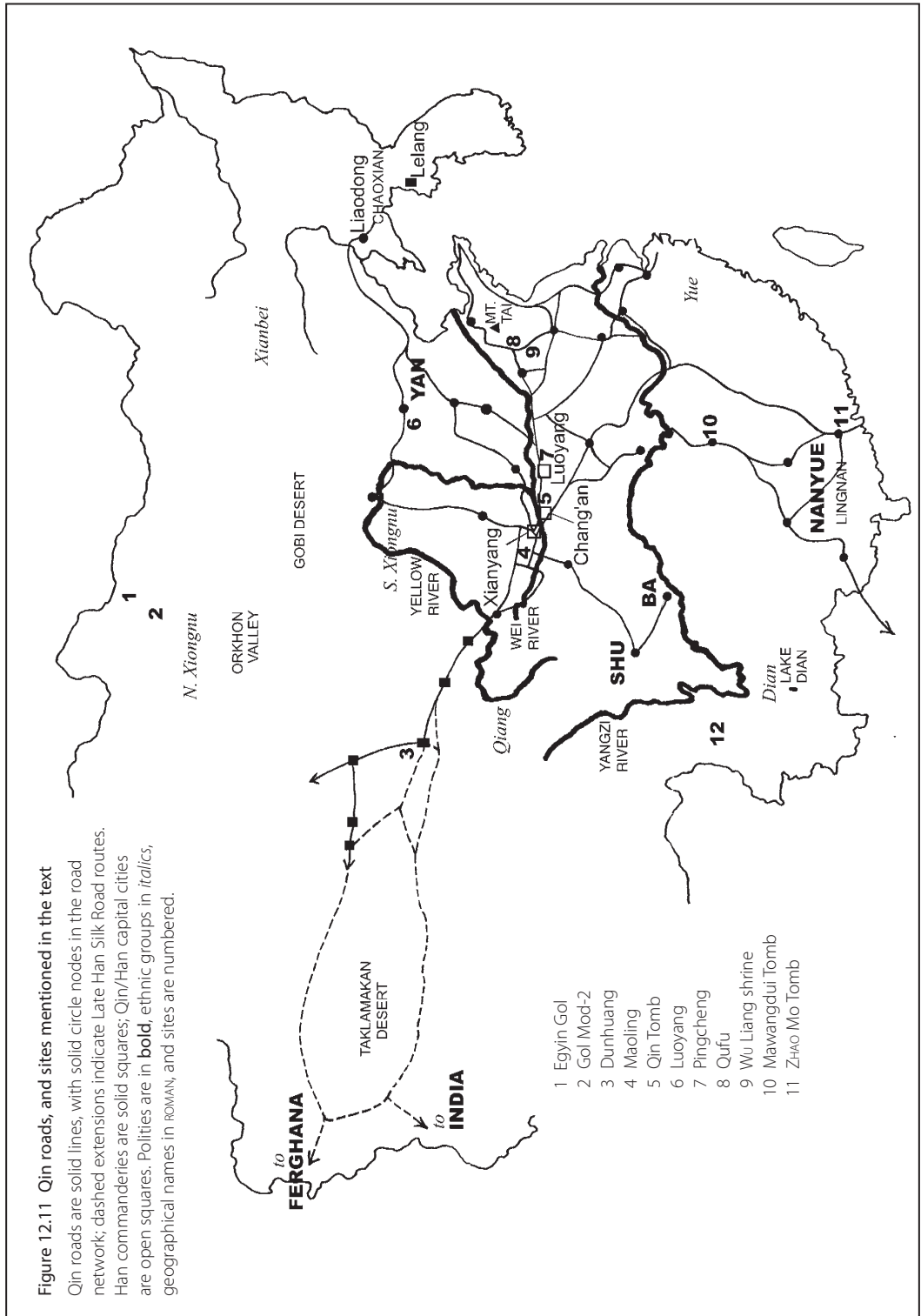
Roads as arteries to the empire

The Qin system of roads that had been built in record time during that short dynasty was expanded by Han for expeditions into new territory (Figure 12.11). The most significant route was that to the west; a mere rough desert track in Early Han, it eventually became the major trading route across Eurasia. Initially, it brought in many Central Asian products through both tribute and trade – raisins, peaches, clover, furs, woolen textiles and rugs, jade, lapis lazuli and garnet – along with Buddhist monks. Later, myriad other products followed from farther west (India, Persia, Byzantium): pearls, coral, turquoise, glass objects, gold and silver wares, and perfumes, fragrances and incense. In the 19c, the German geographer Ferdinand von Richthofen referred to the routes crossing the Taklamakan Desert in the Tarim Basin as the *Seidenstraßen* (“Silk Roads”),⁴⁵ but a steppe route and maritime routes also connected Han to the Roman/Byzantine world and all between.

In Early Han, Emperor Wu established many new commanderies along these roads: four in the east (Manchurian Basin and northern Korean Peninsula), nine in the south, and seven in the west/southwest. Each of these areas had its own history of relationships with Han, emphasizing the limited nature of Han control within its vast empire. A “cult of exotics” is identified with Han’s interest in the western and southern regions: both were sources of exotic goods, but the south’s climate and the resulting malaria prohibited full colonization.⁴⁶

Road to the west

The route to the west led from Chang’an through the Gansu Corridor to the Dunhuang commandery, established in 111 BC at the eastern edge of the Tarim Basin, thence turned north and west again into the Dzungaria Basin – a route familiar from Bronze Age times. Further expeditions established routes around the northern and southern edges of the Tarim Basin itself. However, it was not as yet merchandise that was sought but alliances with western tribes and oasis kings with whom to counter the threat of invasions along the

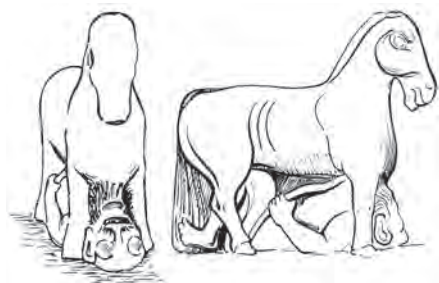


northern border by the Xiongnu, one of the *hu* tribes of Warring States times. Emperor Wu's military campaigns in this region resulted in the conquest of the Ferghana valley (now part of the eastern 'stans') in 101 BC – the westernmost reach of Han power.

The emperor is also alleged to have desired the celebrated horses of Ferghana that 'sweat blood', now thought to be due to a parasitic skin infection.⁴⁷ Excavations since 2009 of his tomb, Maoling, have unearthed 80 skeletons of horses identified as the ancient and rare Akhal-Teke breed.⁴⁸ Known for its speed and endurance, the Akhal-Teke was exalted as the 'heavenly horse'. Maoling is the largest of all Han tombs, towering 46m over the plain in the Early Han cemetery northwest of Chang'an. Nearby are satellite tombs, one belonging to the general Huo Qubing that was guarded by a stone statue of a horse (Figure 12.12). This was one of the first stone monuments to be placed outside a tomb, a practice which later resulted in 'spirit paths' consisting of human and animal sculptures leading up to important tombs, as still visible today at the Ming tombs north of Beijing.

Figure 12.12 Han horses in stone and ceramic

Due to the need to maintain cavalry for fighting the Xiongnu, horses were extremely valued assets in Han. The crude but powerfully sculpted stone horse (above left) guarding Huo Qubing's tomb is akin to the modern Mongolian pony, though the drawing (upper right) overemphasizes the horse's stubbiness. The figure underneath is often interpreted as a conquered Xiongnu warrior. The ceramic horses deposited as grave goods (right), the largest 1m tall, are long-legged and long-necked by comparison, representing the fleet horses imported from Ferghana.



South of the Gansu Corridor stretches the northern Tibetan Plateau, where a different pastoral society had lived since the Late Neolithic. Known to the Shang and Zhou as the Qiang and perhaps reflected in the Qijia culture, they were also recruited by the Han as allies against the Xiongnu. The Qiang generally submitted themselves as ‘inner subjects’, meaning they had to pay taxes and contribute labor; the commandants who oversaw them got rich on extractions of gold, horses and wives.⁴⁹ From the 1c BC, Qiang were incorporated as ‘dependent states’, supervised by the area’s commanderies and laying the ground for the autonomous regions that exist in China today. By the end of the 2c AD, Qiang people comprised half the population in Guanzhong.⁵⁰

Road to the south

Qin state expansion reached the Nanling Mountains in the south by 211 BC. In the area known as Lingnan, south of those mountains, the Qin established three commanderies among the Yue peoples who occupied the southern and southeastern coastal regions. One of the Qin generals stayed behind after the fall of Qin to establish his own kingdom of Nanyue with the capital in present-day Guangzhou City. Despite his rejection of Han rule and adoption of Yue customs, the tomb of his son, ZHAO Mo (r. 137–122 BC), was built in northern mainland style with stone-paneled chambers, and the deceased was interred in a jade suit.⁵¹ Jade and gold seals identified the tomb’s occupant, who was accompanied by more than 1000 grave goods and 15 human sacrifices – continuing a custom no longer practiced farther north. A decade later in 112 BC, Emperor Wu re-conquered the southern coast and established nine commanderies that extended from Lingnan south into modern Vietnam.

In addition to Lingnan, the southwestern region around Lake Dian near present-day Kunming City became important to Han. Texts state that the far southwest was occupied by the Dian people, who are known archaeologically to have possessed a bronze culture with affinities to the Southeast Asian Dongson culture. A major early site, Haimenkou, suggests that bronze-working developed there in the first half of the 1m BC,⁵² but researchers differ in deriving the southwestern bronze culture directly from the steppe peoples to the north,⁵³ or through the Shang and Zhou polities.⁵⁴ These Bronze Age sites formed the background for Dian florescence between the 3c BC and 1c AD.⁵⁵ The *Shiji* tells a story similar to that of Nanyue above, with a general of the Chu state unable to return from a military campaign in the southwest because of Qin’s conquest of Chu. Undoubtedly, these interactions stimulated socio-political



Figure 12.13 Diagnostic bronzes from the south-western Dian culture

Cowrie shells had been valued from Shang times onward, often included *en masse* in burials. The Dian elite made special containers for their cowrie collections; these were capped with lids cast in three-dimensional figures – in the above case, cattle, another important asset. Bronze drums (bottom) also bore cast designs, showing the locals in various hairstyles and dress and carrying tools and weapons. The lid (above right) shows a village scene that includes two larger-than-life bronze drums and several small ones on the pavilion platform. People are gathered with animals, possibly for a ritual ceremony and sacrifices.

developments. Early excavations at cemeteries around Lake Dian yielded prestige goods of ceramic and bronze, including indigenous objects such as bronze drums and cowrie shell containers (Figure 12.13) plus Han iron and lacquerware. Han conquered the area in 109 BC, establishing a new commandery and gifting a gold seal to the “King of Dian”, who headed a local hierarchy and seemingly dominated several surrounding bronze cultures having less elaborate grave goods.⁵⁶ Thereafter, Han influences are seen in central Dian burial goods: jade funerary suits, coins and mirrors. In Eastern Han, many decades after contact with the Han, the brick tomb structure was adopted from the Han heartland – indicating slower sinicization of the commandery’s peoples than in Lingnan.⁵⁷ The southwestern region is of great interest to Southeast Asian archaeologists, with shared cultural traits into modern Vietnam and links to Thailand.

Continuing northern border problems

Qin’s enclosure of the Ordos within the Great Wall, driving out pastoralists from that good pastureland, was the final catalyst for Northern Zone political coalescence. The Xiongnu (called Hunnu in Mongolian) were one of several tribes of *hu* that had harassed the northern Zhou state borders. In 209 BC Modun, son of the Xiongnu

chanyu (chief), ousted his father, consolidated his retinue into an army, and conquered all other Hu tribes.⁵⁸ The emergence of Modun as a hegemonic ruler actually enabled negotiations with the Han Court, now forced to treat him as an equal. The court established a treaty based on the *heqin* ('peace and kinship') policy of bestowal of exotic gifts on local rulers in exchange for their alliance: Modun received lavish gifts, including a princess to make a marriage alliance.

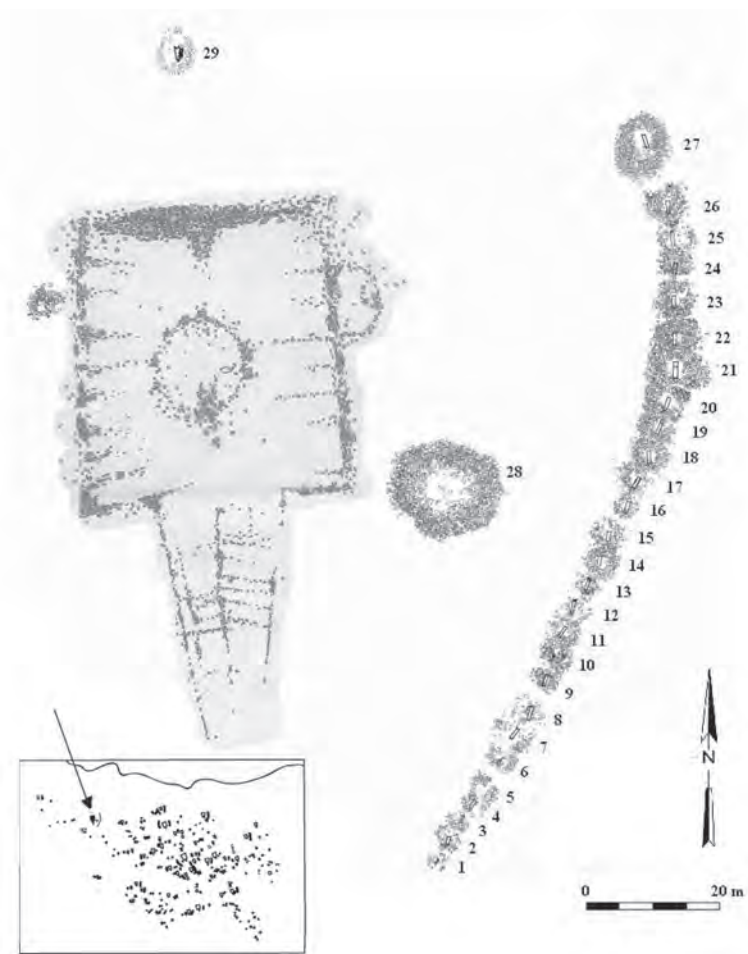
These efforts were operationalized between 198 and 134 BC, but unfortunately they did not stop the raiding by subordinate pastoral groups who were ruled by various kings and chiefs.⁵⁹ Emperor Wu ended the treaty and instead mounted military campaigns between 129 and 119 BC to pacify the Xiongnu, driving them northwards. Succession disputes split the Xiongnu, and one group submitted to the Han Court and settled within Han territory. These northern and southern branches were given the opportunity to reunite during the WANG Mang interregnum and the civil war that ensued, but the split was made permanent *ca.* 48 AD. Raids by the northern Xiongnu continued until one of the lesser tribes, the Xianbei, killed the northern *chanyu* in 87 AD and the Han destroyed the Xiongnu altogether in 89 AD.⁶⁰ The Xianbei went on to establish the Northern [Toba] Wei Dynasty, and two other ruling houses of later Chinese dynasties emerged from the Northern Zone: the Yuan [Mongol] (1206–1368), and the Qing [Manchu] (1644–1912).

Although it is difficult to ascribe particular material remains to specific ethnic groups, the sub-discipline of 'Xiongnu archaeology' has been developing for the last hundred years.⁶¹ Excavations of cemeteries reveal diverse burial practices involving cist graves, wooden coffins, or complete Han-style nested coffin and chamber burials. But the two major elite grave styles, showing relative homogeneity throughout Xiongnu territory, were 1) a smaller shaft pit grave covered with a low round mound of stones, and 2) a larger, deep, stepped pit grave with a ramped access into the pit and, on the surface, a ramp up to a square platform covering the grave on the surface, both platform and ramp outlined by stones (Figure 12.13).⁶² These belonged to the highest-ranking individuals in the territorial hierarchy. Many of the items gifted to the Xiongnu by the Han Court or obtained through trade with Han were deposited as grave goods: coins, silk garments, lacquered bowls, and bronze mirrors. Indigenous goods included gold objects, gilt iron, bronze cauldrons, and quilted textiles embroidered with animal art. Imported goods from other regions speak of long-distance elite exchange.

Current research northwest of Ulaanbaatar City (capital of Mongolia) reveals sites occupied by the Xiongnu from the 3c BC to 2c AD. Surveys have identified habitation sites (avg. 1.26ha) and

Figure 12.14
Representative Xiongnu material culture

The square Tomb #1 with ramp access at the Gol Mod-2 cemetery was flanked by 29 sacrificial burials consisting of cobble stone rings (right). A Xiongnu king is thought to have been the tomb's occupant. The tomb and the largest satellite burial (#28) are shown in the photo (lower right); they stand within a regional cluster of tombs in the steppes of northern Mongolia. Though not found at Gol Mod-2, bronze cauldrons are a ubiquitous steppe product. Measuring 30cm high, this museum piece (below) could hold a full meal for an extended family.



archaeological features (pit/ditch, hearth) yielding bread wheat, barley and other grains.⁶³ A previous academic distinction between the steppe (wholly pastoralist) and the sown (just farming) is thoroughly discredited, via recognition that pastoralists sowed crops when they could and animal husbandry was an important adjunct to settled farming life.

DNA analysis of human remains from the fully excavated Egyin Gol necropolis reveals some extraordinary changes throughout this time period: early burials reveal a European component (11% of the haplogroups), while later burials include individuals with Turkish connections. The former also encompass double burials; unfortunately none of these were sexed, but the practice was attributed to “cultural influence of the ‘old Scythian spirit’” of the steppes.⁶⁴ Excavations in the Khanuy Valley of a regional Xiongnu king’s ramp-platform tomb and 29 satellite burials in an arc beside it reveal a carefully planned and executed burial tradition (Figure 12.14). Both human and animal skeletons have been recovered from the satellite burials, together with some Chinese trade objects.⁶⁵

Three levels of territorial hierarchy and six walled sites are known for the Xiongnu, but no permanent capital was established. Instead Xiongnu leaders met annually for a congress, likely in a valley west of Ulaanbaatar – now established as a UNESCO World Heritage Site: the Orkhon Valley Cultural Landscape.

Northeastern relations

As noted in the Han history, the *Shiji*, the extension of Han forces across the lower Manchurian Basin into the northern Korean Peninsula brought them into contact with the Puyo and Koguryo peoples in the upper Basin and eastern Basin massif respectively (see Chapter 13). The *Shiji* also mentions a polity called Chaoxian (K. Choson); the characters used to write the name mean ‘morning freshness’ and probably refer to the eastern rim of the Bohai Basin and Yellow Sea (where the sun rises). This area was occupied by Iron Age peoples during the Late Zhou and Qin;⁶⁶ but in 196 BC, a former man of Yan named Weiman (K. Wiman) fled to Chaoxian with thousands of refugees from several other Han principalities and established himself as king of Chaoxian.⁶⁷ Several walled sites and many earthen-pit burials containing wood coffins, slender bronze daggers and cast-iron tools in the northwestern Peninsula have been attributed to Ko-Choson^v,⁶⁸ while the Taedong River provided access to Weiman’s capital, Wanghom, located in or near

^v Ko- ‘old’ (Old Choson = Chaoxian) to distinguish it from the Choson Dynasty (1392–1910).

modern Pyongyang.⁶⁹ Weiman and his successors were treated by the Han Court as 'outer vassals' to resist the Xiongnu and promote Han affiliation among the surrounding peoples. Because they were eventually uncooperative in these endeavors, Han mounted a military campaign and took over the northern Korean Peninsula in 108 BC.

At the time of the invasion, Ko-Choson was a small centralized polity, hierarchically organized, with a 'king', several 'prime ministers', 'high ministers', and generals. The *Shiji* history even refers to one general as an 'assistant king'. In its place, the Lelang commandery was established along with three others whose localities have recently been redefined. The commanderies underwent several consolidations, movements and splits,⁷⁰ but Lelang lasted for four centuries (Chapter 13). It determined the fate of many of the surrounding peoples as it exploited some but drew others into alliance relationships. North Korean scholars today deny that the Han Dynasty established a base in the northern Peninsula and claim the remains around Pyongyang to be purely Korean endeavors.⁷¹

Turmoil at the end of Han

From several examples above (Modun, the Chu and Qin generals in the southwest, Weiman in the northeast), it can be seen that large states tend to spin off smaller states on their peripheries – some of which could turn against the center. How the named individuals gained the power to promote themselves as king/ruler was different in each case but paralleled what was happening within the empire.⁷² There also, powerful local magnates, governors and generals were able to gather enough military might to challenge the central court. These processes as a whole resemble fractalization as known in chaos theory, in that hierarchical societies tend to lay the seeds for the production of new hierarchical societies. Under what circumstances these seeds germinate or not is the research task of secondary state formation. Meanwhile, no empire lasts forever, and the Han Empire failed, as did its contemporary the Roman Empire at a slightly later date.

*Fragmentation of the empire*⁷³

Expansion to the northeast, west and south had put a drain on Han Court resources, and although the Han Empire ostensibly stretched from the east coast to the western deserts, the majority of the population lived on the North China Plain between modern Beijing and the Huai River,^{vi} though there was substantial migration

^{vi} See Maps 15 and 16 showing population densities in Lewis 2007.

southward during the Han Dynasty.⁷⁴ The rest of the empire was occupied by non-Han peoples, many of them aggressive. With the capital at Luoyang, there was little interest in the western lands, so they were left pretty much to the Qiang peoples who had rebelled against the commanderies in 110. In the north, although the Xiongnu had been subdued in 127, the Xianbei had taken their place as raiders along the northern frontier. The Late Han Court had eliminated universal military service to achieve internal security, but this ultimately led to the militarization of the provincial governors, and to the development of private armies under great generals or powerful family heads.⁷⁵

The Late Han after 170 was thus a period of warlordship, where local rulers built up local armies and ruled their territories without much interference by the central court. A millenarian association was also formed by a man who preached that “disease resulted from sin and could be healed by confession” while also believing that he would found a new dynasty under the divine patronage of a new phase of heaven called Yellow Heaven.⁷⁶ His followers wore yellow turbans and revolted in 16 different commanderies in 184, destabilizing central rule. Finally, the famous warlord Cao Cao declared himself king of Wei in 216, and when the Han emperor abdicated in 220, Han territory was divided between Cao Cao and two other warlords, forming the new states of Wei, Wu and Shu. This period is thus referred to as the Three Kingdoms – not to be confused with the slightly later Three Kingdoms (Koguryo, Paekche, Silla) of the Korean Peninsula that emerged in the late 3c.

Succeeding polities

The Chinese Three Kingdoms were short-lived, as a coup in the Wei territory and the conquest of the other states led to brief unification under the Jin Dynasties (Western Jin 265–316, Eastern Jin 317–419). In 311 and 316, steppe nomads destroyed successive Western Jin capitals and captured the emperors, leading to a century of extreme fragmentation (the Six Dynasties and Sixteen states) (see Table 1.3). At the end of the 4c, the Toba (Tuoba) branch of the Xianbei established the first state on the Central Plains to be run by Northern Zone peoples, the Northern Wei Dynasty (386–532), its first capital at Pingcheng then Luoyang. Thus were the northern pastoralists integrated into the central Mainland political systems. The Northern Zone also had great influence on the Pen/Insular bronze cultures, as we will see in Chapter 13.

Further Reading

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Chapter 13

The Yellow Sea Interaction Sphere

(400 BC – 300 AD)

Trade and tribute relations

Communications around the Yellow Sea were ongoing from at least the late 2m BC, as signaled by the transfer of wet rice technology from Shandong into the Korean Peninsula (Chapter 11). The distribution of knife-shaped coins indicate Late Zhou economic activities extending from the northern Korean Peninsula south to Okinawa in the Ryukyu Islands, and several Zhou ring-handled swords (see Figure 10.10-F) have been recovered from the southern Korean Peninsula.¹

Meeting the Hui and Mo

The impact of Yan on Iron Age society on the Peninsula went beyond material technology. Military operations on its northern border brought Yan into contact with peoples in the eastern Manchurian Basin. From this point onward, we have textual references that identify some of the indigenous peoples in the area.

Yan had expanded its network of walled sites through the Bohai Corridor by the 5c BC and was troubled again by the *hu*/Xiongnu in the 4c BC. Yan thus pushed into the Manchurian Basin – occupying the Liaodong Peninsula around 282 BC and establishing its easternmost commandery there. It built a long wall from north of its capital near modern Beijing to Liaodong, along which roof tiles, knife-shaped coins and iron objects have been recovered.² The five commanderies south of the wall are known archaeologically by walled towns, watch towers and military camps positioned for defense. This expansion brought Yan into contact with the Hui and Mo peoples (K. Ye and Maek), forerunners of the Puyo and Koguryo among others, before Yan fell to Qin in 222 BC during the unification wars.

Han domination

The subsequent establishment of Han commanderies in the northern Korean Peninsula in 108 BC transformed relations between and

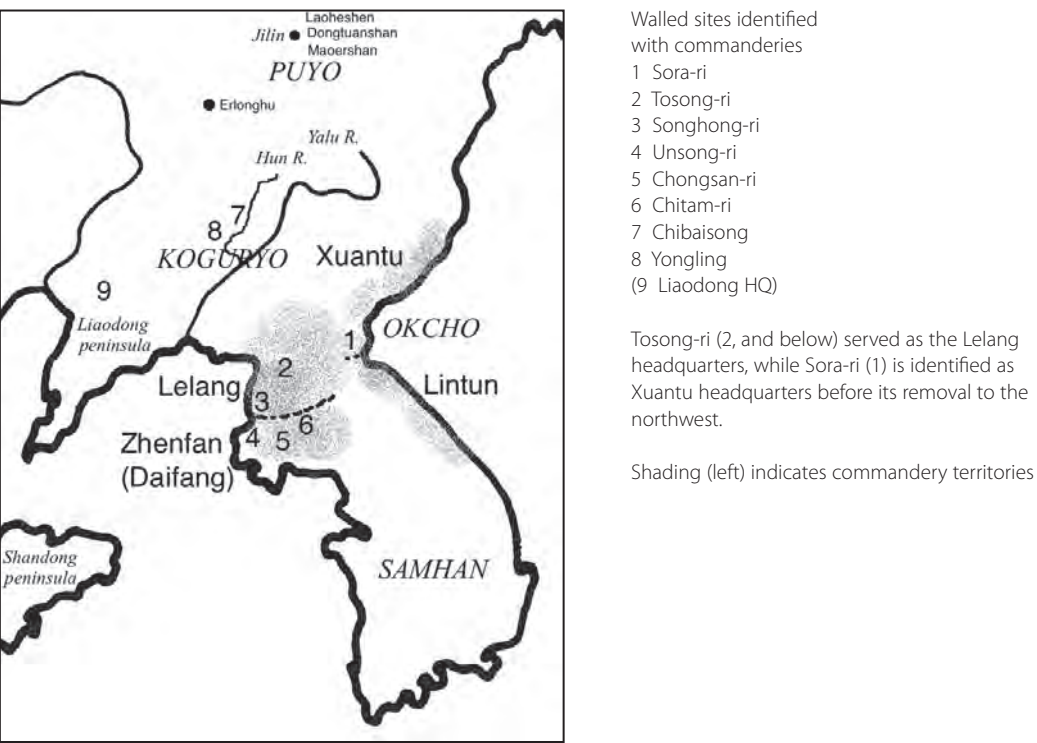
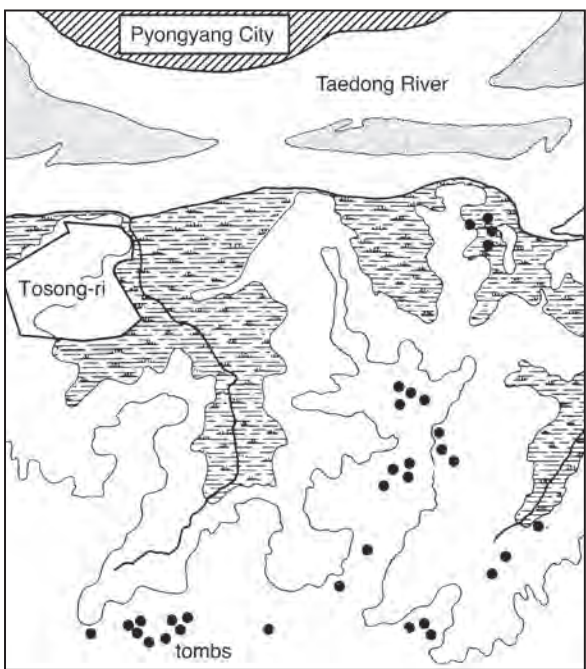


Figure 13.1 Han commanderies and Eastern Yi (Dongyi) peoples

A new proposal for commandery locations puts Lelang and Zhenfan on the western and Xuantu and Lintun on the eastern side of the Peninsula. In 82 BC, Zhenfan was subsumed by Lelang, and Lintun by Xuantu. Then in 75 BC, the Xuantu headquarters moved northwest of the Yalu River valley and Lelang took over the former Xuantu territory as the 'Eastern section' until 30 AD when the Eastern section was abolished. Also in 75 BC, the old Zhenfan territory was designated Lelang's 'Southern section'. This area formed the nucleus of the Daifang commandery, established ca. 204 AD by a local warlord and taken over by the Wei Dynasty in 238.



among the central Court and outlying polities (Figure 13.1). Lelang in particular, although first fulfilling a military role, soon acquired an economic function while also serving as a staging point for surrounding peoples wishing to submit to the Han Court. Harking back to the Court's *heqin* policy of bestowal of many exotic gifts on local rulers in exchange for their alliance (see Chapter 12), Yayoi chieftains in the western Japanese archipelago were drawn into the Han tributary system. However, Iron Age chieftains in the southern Korean Peninsula were enticed to act as agents for Lelang in the extraction of local goods, stimulating an iron industry on the southern coast that provided not only Lelang but all surrounding peoples with raw iron ingots and finished tools.

During the interregnum Xin Dynasty (9–23 AD), the usurper WANG Mang conscripted horse-riders from Manchurian Basin peoples into his army to fight against the Xiongnu.³ Both Puyo in the central Basin and the Koguryo in the southeastern Basin became acquainted with Chinese ways, receiving titles and treasuring Han objects. Lelang was periodically attacked by Koguryo until the latter finally conquered the commandery area in 313 AD. Since two Peninsular states, the Koguryo and Paekche, both claimed to derive their ruling lineages (accurately or not) from the Puyo, the latter's rise will also be covered here, even though their country was landlocked and does not border the Yellow Sea.

Northeastern horse-riders

*Puyo in the central Manchurian Basin*⁴

Puyo is distinctive in two senses: it emerged as the earliest state in the northeast, during the Early Han Dynasty; and it is cited by later states on the Korean Peninsula as the homeland of their elite lineages. Whether or not the latter is true, Puyo serves as an interesting case study of the transformation of a local bronze culture coming into contact with existing states from one direction and nomadic peoples from another. From the 4c BC, it grew out of the earlier Xituanshan bronze culture, absorbing Yan material culture via the Yan state's port of trade, the Erlonghu walled site lying 160km north of the Yan long wall extending across the southern Basin (see Figure 13.1).

Iron tools from Yan and Han were revolutionary additions: hoes, adzes, chisels, sickles, awls – all buried primarily with females – helped produce the surplus needed to support an elite. The introduction – most likely from the steppe – of the horse and chariot plus horse-riding armor transformed warfare and transportation, but the Puyo were not nomadic. Farming of millet and soybeans continued, while

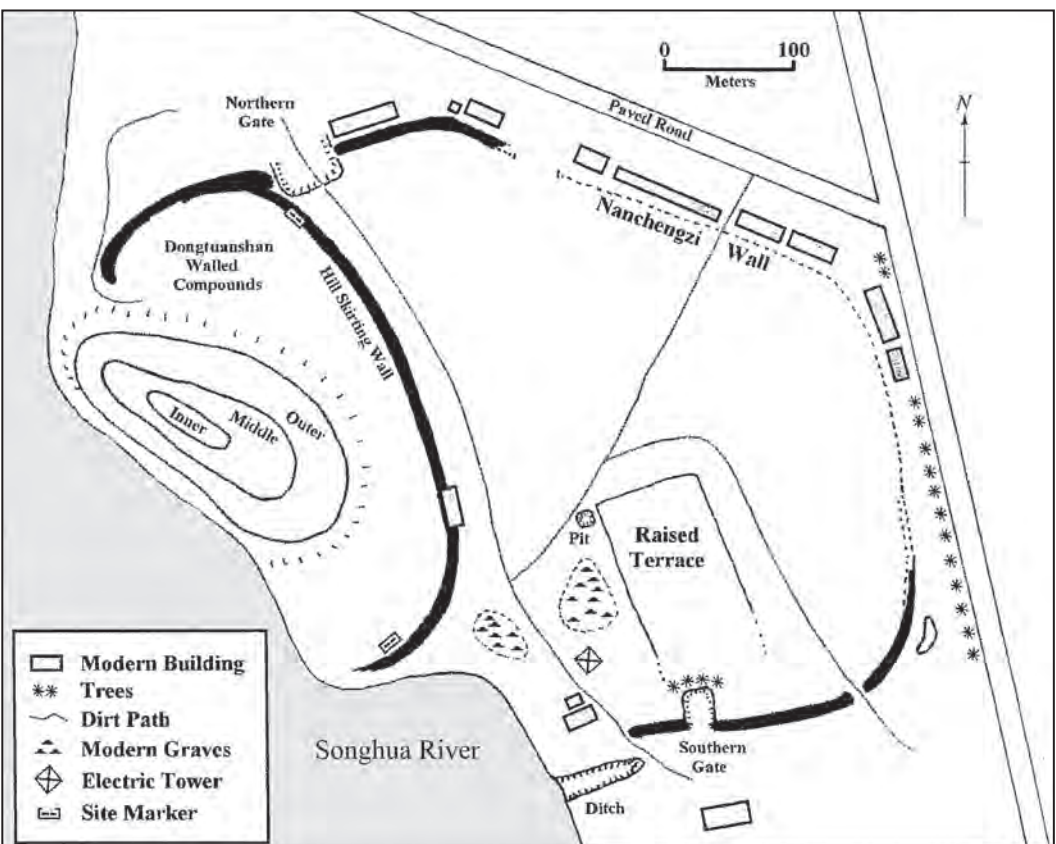


Figure 13.2 The Dongtuanshan capital of Puyo, Jilin City

The Dongtuanshan hill fortifications consist of three ring walls, and two more walls (thick black lines) encompass parts of the site. Typical of northeastern walled sites, the walls follow the topography and are roughly circular, while Mainland-style walled sites are usually square or rectangular. Inside the Nanchengzi wall is a raised terrace area for palace buildings.

the pig of the earlier Xituanshan culture was replaced in importance by the horse, together with cows, sheep and goats.

Two major Puyo cemeteries, the earlier Maoershan and later Laoheshen, have yielded rich burials containing iron double-edged straight swords, horse gear, armor, and ornaments of jade, gold and silver. Han goods include coins, bronze mirrors, and belt hooks, while nomadic goods consist of gilt-bronze plaques, bronze cauldrons, earrings, and ring-handled swords. Maoershan sits near the ostensible Puyo capital known as the Dongtuanshan complex in Jilin City (Figure 13.2). The Laoheshen cemetery shows vast differences in grave goods that probably correlate with degrees of social stratification: two tombs have more than 200 artifacts, while 25 have between 50 and 200 objects, and 101 have fewer than 50. Little is known of internal Puyo organization, as historical dynastic texts only deal with Puyo's role in border issues vis-à-vis the nomadic tribes to their west.

Early Koguryo in the eastern Manchurian massif

The tribes of eastern Manchuria, occupying the Gaogouli district of the Xuantu commandery during the Han period, became known as the Koguryo in Korean. In the early centuries AD, their capital was located in the valley of the Hun River, a tributary of the Yalu (the latter now separating China from North Korea). Burials covered with mounds of river cobbles are characteristic of this period. The Koguryo were known as excellent horsemen and were also drafted into the Han armies at times, but their rebelliousness also caused the Han to set their Puyo counterparts against them. As noted in the dynastic histories for the early 1c AD, warfare between the Puyo and Koguryo most likely began after 12 AD when the weakened Xuantu commandery was located north of the Yalu River valley (see Figure 14.2).⁵

The Lelang commandery

Like Xiongnu archaeology, research on the Lelang commandery has acquired the status of an archaeological discipline, “Lelang archaeology”, while the reach of Lelang has been encapsulated in the concept of the “Lelang interaction sphere”.⁶

Commandery sites

Debates continue about where the four commanderies were established by the Han Dynasty in 108 BC, but it is clear that Lelang headquarters were located in the 31ha earth-walled site named Tosong-ri on the southern bank of the Taedong River – now part of modern Pyongyang City (see Figure 13.1, inset). Representing a colonization of portions of the northern Korean Peninsula by Han China, it is ironic that the commandery headquarters were revealed archaeologically through yet another colonization of the Korean Peninsula – by the Japanese nearly 2000 years later. In 1934–1935, Japanese archaeologists excavated around 1200m² in Tosong-ri, unearthing infrastructure of brick-paved lanes, covered drainage culverts, wells and latrines, foundation stones for wooden building pillars, and inscribed roof tiles identifying one building as the ‘Lelang Ceremonial Palace’.⁷ An abundance of Han-period bronze coins and inscribed clay sealings indicate the headquarters’ central economic and administrative functions. Bronzes, iron tools and glass items were produced on site to supply the commandery with strategic goods.⁸

Other walled sites have been identified as possible headquarters and district offices (see Figure 13.1).⁹ These all had rammed-earth

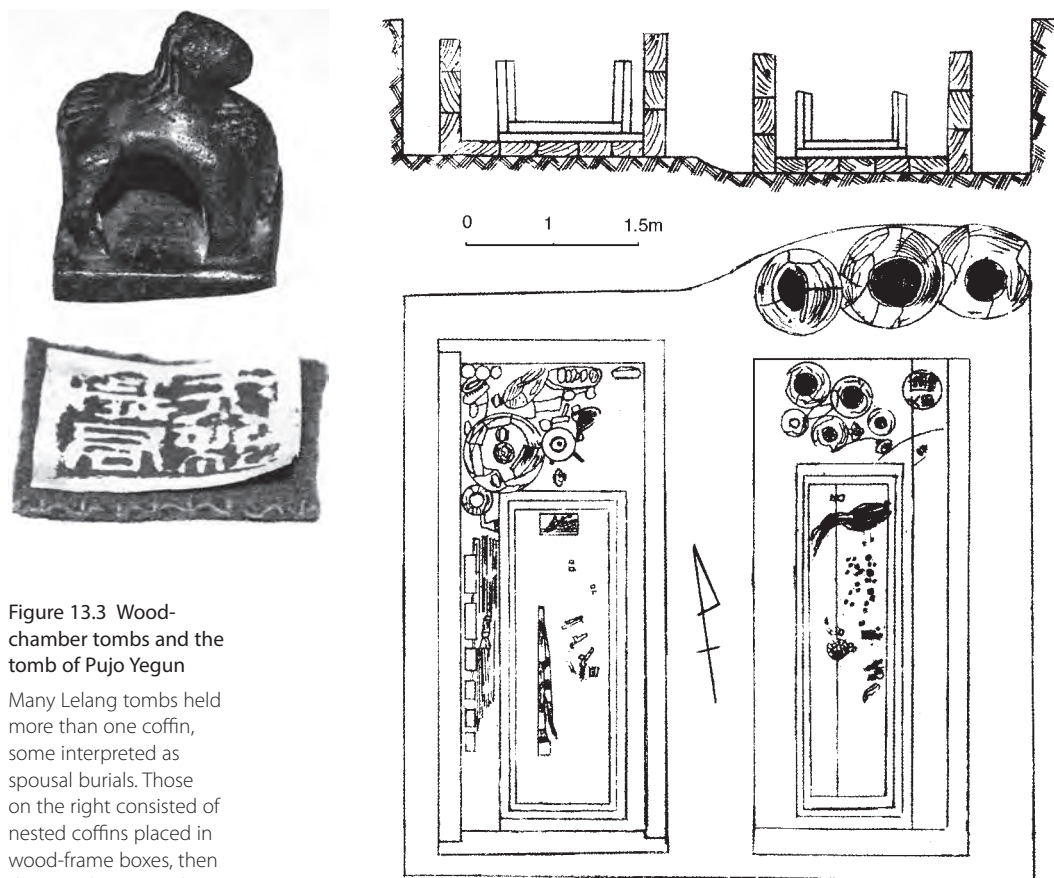


Figure 13.3 Wood-chamber tombs and the tomb of Pujo Yegun

Many Lelang tombs held more than one coffin, some interpreted as spousal burials. Those on the right consisted of nested coffins placed in wood-frame boxes, then deposited in an earthen pit. Grave goods were placed inside the coffin, inside the box and inside the pit.

Pujo Yegun's tomb held 62 Han artifacts and 19 indigenous objects in addition to a silver seal (above left) inscribed with four characters, reading 'Pujo Yegun' (C. Fuzu Huojun), interpreted as the Ye ruler of the Pujo region. A Ko-Choson elite (likely an Okcho man), he was incorporated into the territorial ruling structure of the Lelang commandery and was buried near the headquarters.

walls and shared various features with Lelang: brick-covered floors, building foundations, bronze and iron swords, and chariot parts. Previously Tosong-ri was identified as the capital, named Wanghom, of the Ko-Choson polity (introduced in Chapter 12), but further research finds no evidence at the Tosong-ri walled site that it predated Lelang – though there are many Ko-Choson burials in the vicinity.¹⁰

All of these walled sites were accompanied by burials containing coffins made of jars, tiles, or wood interred directly in the ground or enclosed by a wood or brick chamber (Figure 13.3). The disparities in construction and furnishings not only illustrate status levels but also reveal the interrelationships of several peoples within the commandery territories.

Relations with Shandong and Liaodong

When Lelang was established, local Ko-Choson functionaries were incorporated into the ruling network (see Figure 13.3) to work

with bureaucrats brought in from the Shandong and Liaodong commanderies.ⁱ Since Ko-Choson inhabitants already included two peoples – Iron Age families and refugees from Yan and Qi state regions – the addition of Han militarists, statesmen and merchants made three.¹¹ In the 1c AD, the fate of Lelang was tied to Shandong and separatist movements there. Inscriptions and artwork in Shandong burial shrines (see Figure 12.10) emphasized “sovereignty”, as regional families gained power.¹² Rebellions and uprisings caused many people to flee from Shandong eastward to Lelang. In 25 AD, the Lelang governor was assassinated, leading to the re-imposition of central control by the new Han emperor Guangwu in 30 AD.¹³ These events caused many to flee yet farther into the southern Peninsula, a migration repeated in the late 2c.¹⁴ Some of the new craft skills appearing in the south thus might be attributed to such refugee populations with deep knowledge of Han civilization, but Ko-Choson elements formed the bulk of the transfer.

Lelang tombs

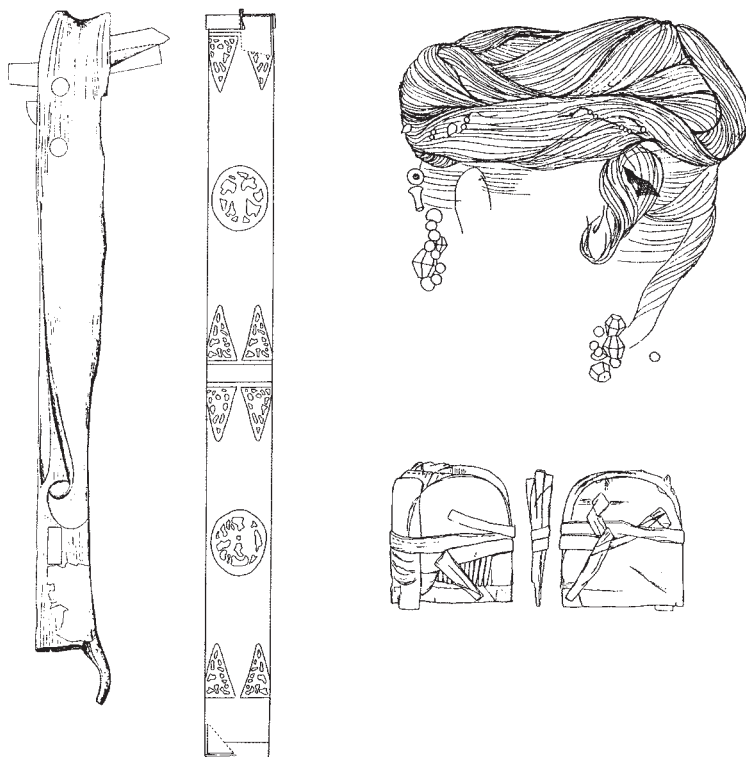
In the hills south and east of Lelang’s walled headquarters are scattered more than 3000 tombs.¹⁵ Their structures and contents speak of changing relationships with the China Mainland. Variations on the Han-style wooden chambers served until the 3c when brick tombs mounded with earth came into use; stone-built tombs appeared later under Koguryo influence. The wood coffin/chamber tombs of the 1c BC contained goods reflecting the cultural heritage of Iron Age Ko-Choson: narrow bronze daggers, iron weapons and tools, and chariot and horse gear.¹⁶ These decreased dramatically after the re-conquest by Emperor Guangwu in 30 AD, with Han imports characterizing the 1–2c AD grave goods repertoire: bronze vessels and lacquerware, bronze mirrors, coins and jades. This phase has been termed Lelang’s “Golden Age”.¹⁷ The majority of rich tombs occur around Pyongyang (Figure 13.4), while those farther away lack the sumptuous Han goods, indicating the degree to which individuals were integrated into commandery activities.

The presence of the Han commandery on foreign turf makes for an interesting case study of interaction between incoming and resident populations. Few Han government officials dispatched to the commandery were buried in the Lelang tombs, since one Han administrative principle was to have the body of a deceased official returned to his homeland.¹⁸ Beyond this, it is impossible to tell the

ⁱ The Liaodong commandery was originally established by the Zhou state of Yan and was then taken over by Han.

Figure 13.4 Han grave goods for a spousal burial

Included were a wooden crossbow and lacquered sword sheath with silver appliqué; the woman's hair and faceted crystal earrings remained intact, with her lacquered comb in a silk case.



ethnicity of a tomb's occupant purely by the grave goods. Appendix L maps out three major constellations of grave goods: 1) those of Han-style only, 2) mixed Han and indigenous objects (e.g., fine-line bronze mirrors, narrow bronze daggers, and animal-style buckles), and 3) Han with local pottery. The central column is most interesting in that Pujo Yegun's tomb had a mixture of both Han and indigenous goods, as might be expected of an indigenous individual operating in the administrative network. But two other persons with Chinese names also were buried with similar mixed grave goods. If some Han persons were acculturating to indigenous ways, who is to say that local individuals could not have sinicized to the extent of having all Han-type objects?

From Gongsun to Wei rule

When the Han Dynasty lost control of its eastern commanderies in the late 2c AD, the governor of the Liaodong commandery, a member of the Gongsun family, took over the southern part of Lelang and founded the Daifang commandery there between 202 and 204 (see Figure 13.1). During the early 3c, the territories of

all three commanderies of Liaodong, Lelang and Daifang came to be administered by the Gongsun. Given the non-dynastic nature of Gongsun rule, there are no historical records that document the time period of early Daifang, but when the Wei Dynasty acquired the Daifang commandery in 238 AD, it was brought again under central control and is discussed in the Wei histories. The *Weizhi* is one of the most important documents for assessing socio-political development in the Pen/Insular region at this time.ⁱⁱ

The Samhan of the southern Korean Peninsula

Commandery connections

The area south of Lelang was known to commandery officials as the home of the Samhan (Three Han).ⁱⁱⁱ Origins of the Peninsular Han are hotly debated, particularly in terms of links to Ko-Choson and migrations of people following the large socio-political disturbances noted above.¹⁹ The dynastic chronicles contain anecdotes documenting the foreign origin of some Samhan residents – one group claiming descent from the Qin on the China Mainland.²⁰

Archaeologically, the Samhan grew out of the Late Mumun / Early Iron Age cultures (see Chapter 11). Their emergence is marked in the southern Peninsula by the appearance in the 3c BC of wooden coffins in earthen pits and Wajil (Figure 13.5), a new gray hard-fired earthenware, replacing Mumun pottery.²¹ Following the conquest of Ko-Choson and the establishment of Lelang, population increased, full-time specialists emerged, and surpluses were managed by elites in exchange networks.²² These networks extended from the Korean Peninsula to the Japanese Islands, which, as we will see, became greatly indebted to the Peninsula in developmental terms.

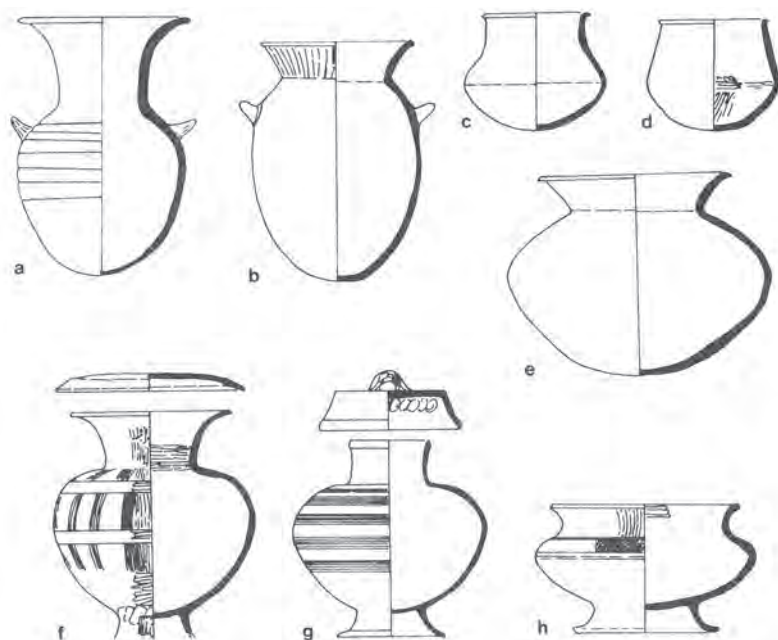
Around the turn of the millennium, the center of bronze production shifted from the southwestern to the southeastern Peninsula;²³ a whole series of small bronzes, including animal images and bosses for attaching to other materials, together with a wider variety of dagger hilt shapes, suggest a proliferation of bronze workshops. Bronze weapons with cast decorations are specialties of this period. Whatever iron-working technology had existed up to that point was augmented by knowledge and demand imparted from Lelang; production began in earnest in two southeastern areas: around modern Kimhae and Ulsan cities. Iron became the primary

ⁱⁱ The *Weizhi*, *Chronicles of Wei*, is one of the volumes of the *Sanguozhi*, *Chronicles of the Three Kingdoms*; the Chinese Three Kingdoms were Wei, Wu and Shu, formed from the demise of the Han Empire (see Chapter 12).

ⁱⁱⁱ The Peninsular Han (韓) is written differently from the dynastic Han (漢).

Figure 13.5 Wajil pottery

Wajil is the successor to Plain Pottery in the southeastern Peninsula. It is unglazed earthenware produced in a kiln. Early examples are reduction-fired; later, oxidized pieces are common. The clay used resembles roof tile clay, giving Wajil its name meaning 'tile-quality' ware, with vessel surfaces having a slightly powdery feel. Wajil can be divided as shown here into Early (top) and Late (bottom), or into six sub-phases (not shown), beginning in the 1c AD. Note the shift from incised to combed decoration between early and late.



burial good, accompanied by locally produced bronzes but only a few imported Mainland bronzes – though the variety of the latter is quite wide: mirrors, belt hooks, crossbow triggers, horse bells and trappings, chariot fittings, bronze arrowheads and scabbard ornaments.²⁴ Thus, the Three Han existed in the Late Iron Age (0–300 AD), which is also known as the Proto-Three Kingdoms period, teleologically predicting what would follow them in chronological terms.

Decades of extensive research on the ethnographic descriptions of peoples in this area written into the Han and Wei histories gives us an idea, from the dynastic perspective, of the numbers, sizes, and populations of the so-called polities (*C. guo*, *K. guk*) in the three Han regions. Mahan in the west consisted of 54 polities having a total of more than 100,000 households, giving an estimated population of 500,000. Pyonhan in the south and Chinhan in the east had 12 polities each. In general, large polities had 10,000+ households, while small polities had a few thousand. Based on these records, the Samhan population in the mid-3c AD is estimated to have approached one million.²⁵

Archaeological investigations for this period have lagged behind others, but present-day infrastructural projects such as dams and motorways have stimulated excavations that increase our knowledge of Late Iron Age settlement. The Chinese chronicles mention

walled settlements, but these are only known for the Han River basin in Mahan territory; for the southeastern polities, only moated and palisaded settlements have so far been identified. Some see these as defensive features and, given the numerous iron weapons in burials, postulate competition between Samhan polities.²⁶ There is little material evidence of communications with Lelang and Daifang, with most Han goods concentrated in the southeast. Two sites in this area stand out *because* of their links with the commanderies: Choyang-dong and Taho-ri (Figure 13.6).

Choyang-dong cemetery is positioned on a gentle slope southeast of modern Kyongju City, with burials from the 1c BC to the 5–6c AD. Notable among these is Choyang-dong burial #38, a wood coffin burial dating to the 1c AD that yielded four Early Han mirrors.²⁷ Excavations at this cemetery in particular made archaeologists realize that many Peninsular ‘pit burials’ (i.e., those without coffins) must have had coffins in them that had since deteriorated and disappeared.

Taho-ri burial #1 was a split-log coffin burial near the southern coast dating to the late 1c BC; though it had been looted, many artifacts of the Ko-Choson culture were recovered (Table 13.1). Several aspects make this burial special, particularly the mixture of Han and non-Han features. The coffin was a dressed, split log, perhaps linking to southwestern Mainland or even Southeast Asian customs.²⁸ A ‘waist pit’ under the coffin is an archaic feature dating back to Shang if not earlier. In the waist pit was a basket filled with many objects, including writing brushes and small knives used to shave wooden slips that were written in ink. The brushes were obviously locally made, being twigs fitted with brush hairs at both ends – unlike the sophisticated implements used throughout the Han empire. Finally, a lacquered sword sheath replicated the very distinctive shape that we see in the Early Iron Age bronze repertoire (see Figure 11.8 #29). Cumulatively, this combination of objects and



Figure 13.6 Samhan regional divisions and sites

split-log coffin (after looting)	underneath coffin	'waist pit' basket	indeterminate (bold = Mainland goods)
lacquer-haft dagger, wooden bowl, glass bead necklace, flat iron ax	several hafted long iron axes, lacquered pedestaied bowl, coils of string, rope segment, chestnuts, tree leaves	2 lacquered bronze daggers, 1 lacquered iron dagger, 1 wood-hafted knife, 2 iron dagger fragments, 1 lacquered ring-pommel knife, 1 bronze spearhead, 4 iron spearheads, 5 writing brushes, paring knife	tools, 5 cast-iron axes , 2 wood-hafted iron sickles, 'star-and-cloud' Han mirror , Han-style bronze belt hook , bronze ring with incised triangles, 4 other bronze rings, wuzhu coins , small bronze bell with indented base

Table 13.1 Objects found
in Taho-ri burial #1

features speaks of residual Early Iron Age features and connections with the southern Mainland as well as Lelang. Rather than the imposition of a Han personage on this coastal area, the local elite were absorbing cultural elements wherever encountered, improving their status vis-à-vis long-distance relations.

Views differ as to whether the Samhan peoples were courted by the commanderies or were exploited by them. The Han Dynasty was known to operate a “loose rein” policy,²⁹ though local chieftains were often recruited to be agents for the supply of goods to Lelang. Many raw materials – particularly iron from Pyonhan and Chinhan – were imported from the south to support commandery operations.³⁰ But relations might not have been coerced: records of chiefs submitting themselves to Lelang or the Late Han court date to 20–23 and 44 AD,³¹ and Han Dynasty luxury goods together with administrative implements in southern burials like Taho-ri evidence voluntary participation in the tributary network. The later Wei, however, took “an abrasive stance toward Koguryo and the Han peoples [but] expressed a favorable attitude toward the Wa people of the Japanese archipelago.”³² The Wei bestowal of rank and title on indigenous chieftains is interpreted as part of a ‘divide and rule’ policy, designed to prevent regional consolidation of power.³³ Nevertheless, the *Sanguozhi* states that in the mid-3c even “common people proceeded to the commandery to pay respects to the court [and] they all made their own robes and caps. In all, over 1000 of them carried their own seals with cordons and wore their own robes and caps”.³⁴

Ceramic advancements

The Plain Pottery with thickened rim that characterized the Early Iron Age developed in various regional directions, but one common advance was the use of kiln firing.³⁵ Hard-fired, red (oxidized) earthenware with an outer surface finished by scraping continued the Mumun tradition until around 200 AD. Meanwhile, a new

low-temperature earthenware manufactured with Mainland paddling and wheel finishing techniques was fired in a reducing kiln resulting in gray to grayish-black to reddish-brown colors. These paddled (*t'analmun*)^{iv} wares were used for storage, transport and cooking, but Plain Pottery was used for boiling food. There is still disagreement as to when high kiln temperatures were achieved, whether in the 1c BC or not until the 3c AD,^v but by the latter time, paddled pots termed Kimhae ware were fired to temperatures exceeding 1000°C, leading to the stoneware tradition of the Three Kingdoms period. These wares coexisted with gray Wajil (see Figure 13.5), which appeared in the 1c AD;³⁶ Wajil is mainly limited to the southeast and occurs primarily in burials.

Iron production

Numerous Mainland-style agricultural implements and tools of cast-iron and steel are known from the southern Peninsula, but not all iron was imported. The Wei chronicles reveal that the Pyonhan and Chinha regions in Yongnam were major iron producers whence all surrounding peoples obtained their iron. Nevertheless, iron-working sites are rare, though the areas around modern Kimhae on the southern coast and Ulsan on the southeastern coast have been pinpointed as major production centers.³⁷ Past studies have been unable to differentiate between smelting and smithing (forging) at sites producing slag, but the clearest and earliest evidence for bloomery smelting of iron has now been recovered from the southwest at Yonjae-ri, dating to the 2–3c AD. Analysts estimate that between one and two tons of iron were produced there, judging from the types of slag accompanying a furnace facility.³⁸

Iron-working in Yongnam is known mainly from the products, not the manufacturing sites. The most prevalent artifact was the flared-end iron plate, common from the 1c BC onward and probably deriving from the iron ax.³⁹ It appears that such plates were treated both as ingots for the further forging of objects out of them and as currency in exchange transactions. Trade to Lelang was accomplished both by overland transit from the southeast through the center of the Peninsula along the 'Yongnam highway', still in use today, and around the edge of the Peninsula hugging the west coast to Pyongyang at the Taedong River mouth. Commandery artifacts are more prolific in these areas than others.

As early as the 1c BC, the person buried in Taho-ri burial #1

^{iv} Previously called Kimhae ware.

^v Yi, H. 2009: 43 says 1c BC, while Choi, J. 2008 says 3c AD; see Barnes 2001, chapters 3 and 4 for the history of the debate.

might have been involved in trading iron to and from Lelang, given both cast-iron and bloomery iron ax heads in the grave.⁴⁰ From the 2c AD, many burials in Yongnam had floors paved with such iron ingots. The Sara-ri burial #130 exhibited both wealth and distant trade connections, with an ingot-paved floor, three iron swords, a narrow bronze sword 50cm in length (hardly a 'dagger'), bronze buckles, a large iron cauldron from the Manchurian Basin, a small bronze mirror probably made in Kyushu, and a 20cm-long bronze tiger-shaped belt hook.⁴¹ These contents can be contrasted with the burials at Oksong-ri, northeast of Kyongju, which had a radically different grave goods inventory: many iron tools and knives, distinctively barbed ceremonial iron blades, faceted amber and crystal beads, curved beads invoking relations with the Japanese Islands, round blue glass beads, and Wajil pottery. Thus, individual regions in Yongnam, even within Chinhan territory itself, appear to have had different trade connections bringing in exotic objects from various surrounding cultures. In the late 3c, Chinhan began to develop relations with the Koguryo while Pyonhan "had no choice but to devote itself to trade with Japan".⁴²

From the Three Han to the Three Kingdoms

From the late 2c AD, the Samhan polities grew both economically and militarily as Han control over the commanderies waned; thus, compared to the Han period, objects imported from the commanderies decreased sharply from the Yongnam archaeological record.⁴³ Iron agricultural tools replaced wooden ones, and iron weapons totally replaced bronze ones. Interment styles switched from simple wood coffins to wood-chamber graves, and the quantities of grave goods interred increased dramatically. After the downfall of Wei in 265, the different polities in Chinhan and Mahan were able to send their own missions directly to the Western Jin court; between 276 and 291, 18 missions are recorded, with from 2 to 30 polities participating in any particular one.⁴⁴

It is from this time period that the indigenous forms of the later Three Kingdoms polities began to emerge from among the many Samhan polities: the Chinhan polity of Saro became Silla state, the Mahan polity of Boji, as known to the Chinese, became Paekche state, and the Pyonhan polity of Kuya transformed into the Pon-Kaya chiefdom. Koguryo, the third state of the Three Kingdoms, was still busy harassing the old commandery areas; after decimating their territories in the early 4c, Koguryo came into contact with Silla and Paekche, leading to a very contentious Three Kingdoms period on the Peninsula (Chapters 14, 15).

Yayoi bronze cultures

Renewed continental connections

As introduced in Chapter 11, the Yayoi farming culture spread rapidly from Kyushu through the western archipelago by the mid-1m BC. In the Middle Yayoi period, North Kyushu was drawn into renewed interaction with the Peninsula – *after* the adoption of rice agriculture but *before* the establishment of the Han commanderies. Both bronze and iron from the Peninsula were added to the Yayoi repertoire around 300 BC via the Slender Bronze Dagger culture (see Chapter 11). This date, if correct,^{vi} generally coincides with the Zhou state of Yan's push into the Liaodong region, which is thought to have initiated the Early Iron Age on the Peninsula.⁴⁵ It is not improbable that ramifications were felt all the way down the Peninsula into the Islands, bringing a new wave of technology and possibly more migrants into the western archipelago.

Shortly after slender bronze daggers from Early Iron Age chiefdoms on the Peninsula began to appear in North Kyushu en masse, iron-working (smithing, not smelting) and bronze-casting processes were established in the archipelago.⁴⁶ The raw materials for the local casting (bronze) and forging (iron) of goods had to come from the continent, since archipelagic resources of copper and iron were not yet mined. Not only imported raw materials but also imported finished products were often melted down and re-cast (bronze) or re-forged (iron) into more locally desirable objects (Figure 13.7). Stone molds were used for most bronze objects, with designs incised into the mold face.

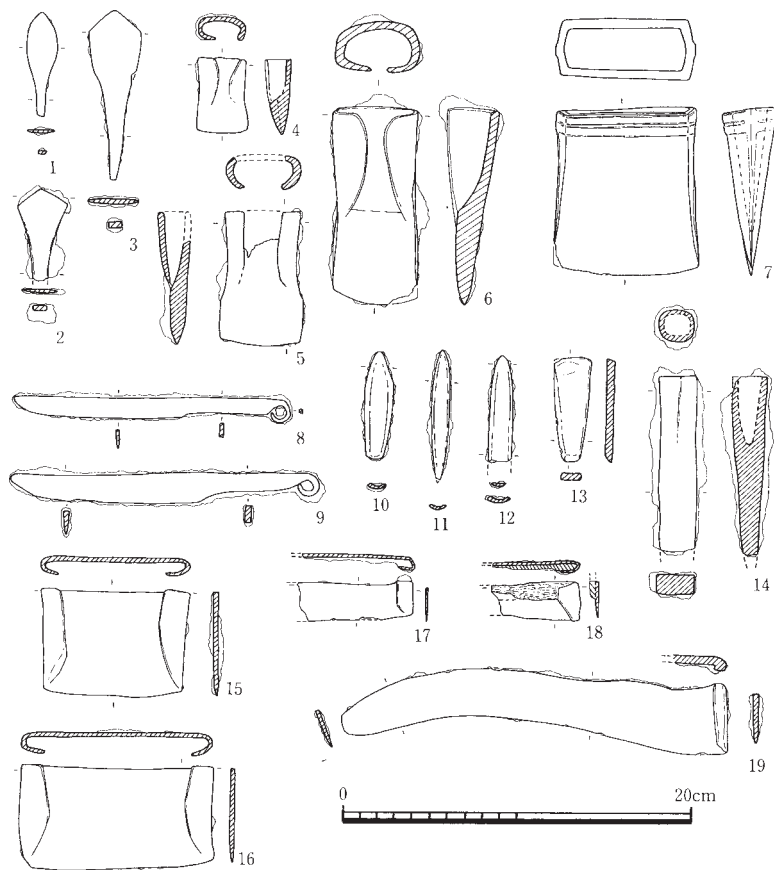
Bronzes brought into the Islands from the Slender Bronze Dagger culture were subsequently augmented by bronzes – particularly mirrors – and other elite objects acquired from Lelang. The bronze cultures in the islands that developed from these sources have two foci: North Kyushu in Western Seto, and the Kinai in Eastern Seto (Figure 13.8).^{vii} In the Middle Yayoi, Western Seto focused on the production of weapons, both bronze and iron: slender bronze daggers, broad-bladed daggers that probably had a ceremonial function, halberds and socketed spearpoints. Han dynasty mirrors were valued imports, used as prestige goods in burials. The Eastern Seto bronze culture was focused on bells. Lead isotope analyses indicate that the early bells (20–30cm in height, >10% tin) were recast from melted-down bronzes from the Slender Bronze Dagger culture, while the later ones (70–140cm, 3–4% tin) were recast from Mainland materials.⁴⁷

^{vi} Remember, the AMS date is given as 400 BC.

^{vii} Note that these bronze spheres do *not* correspond to Mizoguchi's (2012a: 113–119) *ceramic* horizons of northern Kyushu, western Japan and eastern Japan.

Figure 13.7 Iron tools from Yoshinogari

1–3 arrowheads; 4–6 folded-socket axes; 7 socketed ax; 8–9 fern frond-handled knives; 10–12 point planes; 13 plane; 14 socketed chisel; 15–16 folded-socket hoe blades; 17–19 folded-socket sickles. These came from Late Yayoi contexts at this site which spanned several centuries (see BOX 14.2).



The fact that Han mirrors were treasured in North Kyushu but used only for raw material in Eastern Seto suggests vast differences in social values, while the prevalence of weapons in Western Seto and bells in Eastern Seto may correlate with different forms of social control. In North Kyushu, weapons were interred with individuals in stone cists or burial jars as symbols of their power and authority (Figure 13.9). But bronze bells in Eastern Seto are always found in non-burial contexts, usually in caches on isolated hilltops; they are thought to have been ceremonial objects belonging to and benefiting the whole community, perhaps through use in subsistence rituals (Figure 13.10) since bells often bear patterns of flowing water or cast images of birds, insects, rice granaries and hunting scenes. Community orientation is also apparent in the burial facilities of Eastern Seto: these were moated precincts, usually measuring about 10 × 10m and ditched all around, containing adults buried in plain pits or wooden coffins and infants interred in jars. Cemeteries consisting of several moated precincts suggest that each precinct was

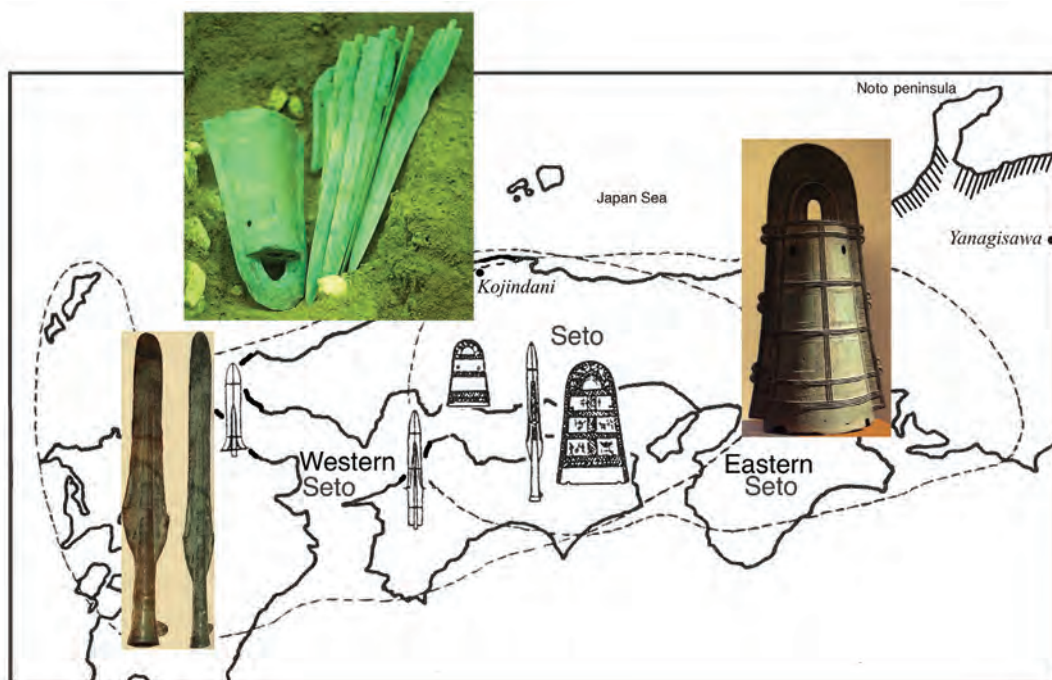


Figure 13.8 Spheres of Yayoi bronze use

Weaponry dominates the bronzes of Western Seto, while bells characterize Eastern Seto. In the Inland Sea (Seto) region, these spheres overlap but the usage patterns follow Eastern Seto. //// (upper right) indicate bead-making sites along the Japan Sea coast in Hokuriku.

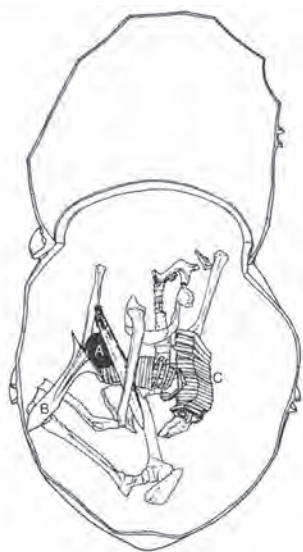


Figure 13.9 Burial jars of North Kyushu

On the left, two Middle Yayoi burial jars have been placed mouth to mouth, while the one on the right has a bowl-like lid. Scale is provided by a 6'5" (196cm) Caucasian male – far taller than the average Yayoi male at 162–163cm. The deceased on the left was buried with a Han Dynasty bronze mirror (A), a locally forged iron halberd (B), and a series of bracelets (C) made of *Tricornis* shells from the southern Ryukyus, marking him as a third-tier elite.



Figure 13.10 Imagined Eastern Seto bronze bell ritual

Deriving from the Peninsular Iron Age bell, Yayoi bells initially had hanging clappers and internal rims against which the clappers could ring. These are called 'bells to listen to', while later bells lacked these attributes but are highly ornamented and therefore called 'bells to look at'. Crucial to this transformation was the enlargement of the bells (to as much as 1m high) and their increasingly complex decoration.

a family burial ground and those buried in single graves outside the precincts were of lower or marginal status. This system appeared in late Early Yayoi in the Kinai and spread westward through the Inland Sea.⁴⁸

Where bells and weapons overlap in the Inland Sea (Seto) area, they are buried together in caches. Some of the most spectacular finds have been in this region: the cache at Kojindani (see Figure 13.8) yielded 358 daggers, 16 halberds, and 6 bells.⁴⁹ At the end of Middle Yayoi, these spheres merged. Eastern

Seto practices spread into Kyushu – with weapons buried in caches – while weapons moved in the opposite direction, making their way into the Kinai and beyond.⁵⁰

A recent discovery puts bronzes farther east than previously known: a cache of eight halberds and five bells discovered at the Yanagisawa site (see Figure 13.8), in the central mountains on a riverine route to the Japan Sea coast, was accompanied by pit-buildings, cemeteries and paddy fields.⁵¹ Cylindrical beads of green tuff were found in one burial, suggesting that access to the Japan Sea coast – where bead-making continued from the Jomon period throughout Yayoi – might have been a motivating factor in colonizing this inland route. Despite the assumption that rice agriculture spread by 'idea diffusion' beyond the waist of Honshu, these finds show that Yayoi migrants themselves had come to stay. Investigations of dental features at nearby sites confirmed influence from continental immigrant lineages.⁵²

North Kyushu continental gateway

The *Houhanshu* (Chronicles of Later Han) states that the Wa peoples^{viii} were divided into more than 100 *guo* 'countries', 30 of which maintained communications with the Early Han court.⁵³ The names of some *guo* have been linked to places in Kyushu, for example, Na and Ito. These were both important locations in North Kyushu, acting as focal points for trading networks between the Peninsula and Islands (Figure 13.11). Until late Middle Yayoi, trade was carried out through Nuk-do Island on the southern Peninsular coast, and

^{viii} Wa (C. Wo) was used by the Chinese as both an ethnonym and a geographical referent to the Japanese Islands; it also occurs in combination with *guo*, Woguo, but rather than a polity named Wa, this was probably a more general reference to the 'land of the Wa'.

one scholar wonders whether the literate person of Taho-ri burial #1 might have acted as an intermediary between Yayoi chieftains and the commanderies.⁵⁴ Thereafter into Late Yayoi, the Haru-no-tsuji site on Iki Island was the port of trade.⁵⁵ Ceramics at Haru-no-tsuji include both Samhan and Lelang pottery, while objects shared between Samhan and North Kyushu attest to continuing close connections (Figure 13.12).

In addition to bronze and iron, glass was also imported from the continent, possibly through direct trade contacts with the China Mainland, since glass beads are attributed to the East Coast.⁵⁶ Like the metals, imported glass was re-used to make products of local significance. Two kinds of glass predominated in Middle Yayoi: Mainland lead-barium glass, and potash glass which was common between the 2c BC and 4c AD throughout East and Southeast Asia all the way to Arikamedu on the southeastern Indian coast.⁵⁷ The lead-barium glass was imported as unfinished objects and waste material, while the potash glass was imported as finished products – mainly small round light-blue beads of drawn glass.⁵⁸ Each kind was melted to make curved beads (*magatama*) or small round beads, many of them formed in molds. Lead-barium glass predominated in North Kyushu, while potash glass was more common in the Kinai, intimating that perhaps these areas had differential access to trade routes.

Exotic goods from both the Peninsular chiefdoms and the Lelang commandery have been recovered from extensive cemeteries in North Kyushu comprised of jar and cist burials. Three status levels are recognized depending on the relative proportions of Han Dynasty bronze mirrors, other imports, and locally made grave goods.⁵⁹ Rich graves at the Mikumo and Sugu sites (see Figure 13.11, #2 in Ito and #3 in Na) have been tentatively identified as the burials of ‘kings’ because they contain more than seven Early Han mirrors each – plus other Mainland objects such as glass *bi* disks and gilt-bronze coffin ornaments as well as locally produced goods. Second-tier graves have between two and seven Han mirrors and/or other Mainland and local goods. Third-tier burials have *either* one Han mirror plus



Figure 13.11 Middle Yayoi sites and polities (*guo*) in North Kyushu

Island-hopping from the southern Korean Peninsula would soon bring a traveler to the Yayoi polities of Matsu, Ito and Na. (Modern prefectures in parentheses.) The gold seal found at location ‘x’ has been commemorated in a Japanese postage stamp.



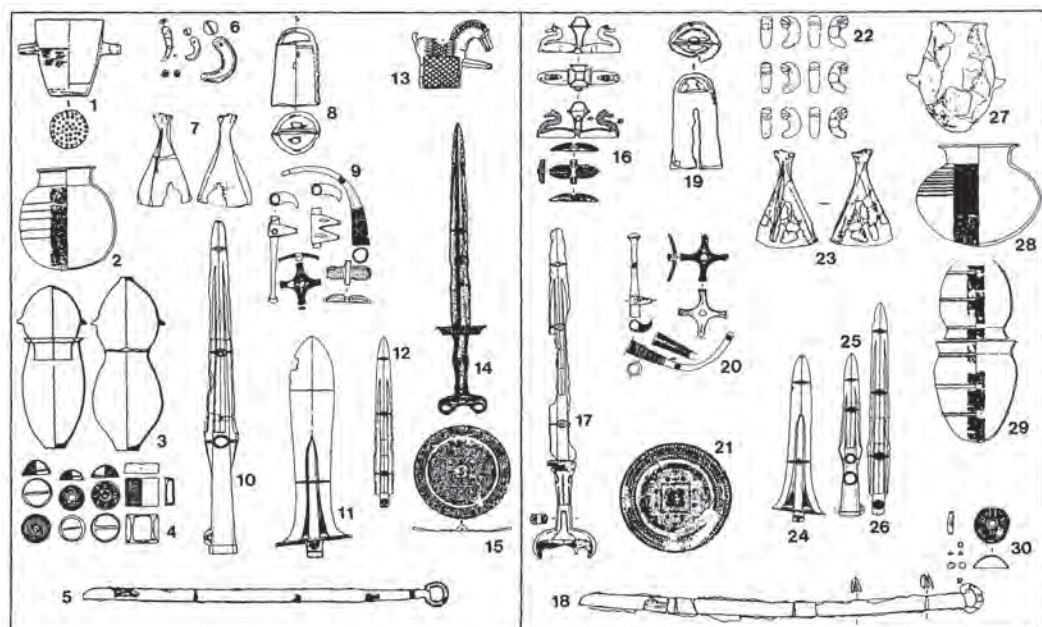


Figure 13.12 Samhan and Middle to Late Yayoi grave goods

Objects and customs shared between the southern Korean Peninsula (left) and western Japanese Islands (right) include handled steamers (1, 27), Wajil ware (2, 28), burial jars (3, 29), bronze buttons and buckles (4, 30), ring-pommel iron swords (5, 18), curved beads (6, 22), oracle bones (7, 23), small bronze bells (8, 19), umbrella rib points and cross-shaped ornaments (9, 20), socketed spearheads (10, 25), halberds (11, 24), narrow daggers (12, 26), antennae-daggers (14, 17), and Han Dynasty TLV mirrors (15, 21). Those without complements shown are horse-shaped belt hooks (13) and ornated dagger pommels (16).

local artifacts (see Figure 13.9, left) *or* local artifacts that include iron weapons.

Prestige goods manufactured in North Kyushu (albeit from imported raw materials) included bronze daggers, iron halberds, shell bracelets, glass beads, and jasper and jadeite curved beads.⁶⁰ The jasper came from the Izumo region where the Kojindani site is located; jadeite was traded in from the Noto peninsula region of the Japan Sea coast, where many bead-making villages are known (see Figure 13.8). The wearing of shell bracelets as a status symbol began by 600 BC, when North Kyushu traders started obtaining tropical shells from the southern Ryukyu Islands and bringing them back for processing into bracelets. Only the elite could wear bracelets made of the broad Pacific conch shell (*Tricornis [Strombus] latissimus*).⁶¹ At the Tateiwa site (Figure 13.11 #4), a major stone-manufacturing locus, an elite of the third-tier rank wore 14 bracelets on his arm (see Figure 13.9, left). This man may have been involved in managing utilitarian stone tool production at the site.

Analysis of the distribution of sites in 1c BC North Kyushu and measurement of their inter-site closeness do not produce straightforward evidence of territorial hierarchies.⁶² Instead, the significant sites are positioned as nodes in communication networks, specifically at mountain passes and crossroads. Sugu, though not the largest or most complex settlement, owed its high centrality measurement to being “the most prominent mediator in the emergent

network.”⁶³ Unfortunately, because this network of competitive and cooperative relations among North Kyushu chieftains was based on relations with Lelang, the hierarchical structure fell apart when Han goods were no longer available due to WANG Mang’s usurpation of the throne in 9 AD.

The situation with the continent is reflected in bronze mirror availability. Throughout the Early Han Dynasty, Han mirrors were coveted items and often buried in North Kyushu graves as prestige goods. After 50 AD, mirrors declined dramatically during the next century,⁶⁴ and the Yayoi resorted to casting their own. Lead isotope results indicate that Early Han bronzes were used to cast imitation mirrors,⁶⁵ which were much smaller than their continental counterparts (10–20 cm vs. 15–20cm). Bells cast in Late Yayoi also used antique material, but this material shows a homogeneity in both bells and mirrors that suggests specialist preparation rather than random collection of raw materials. In any case, lead isotope ratios characterizing Eastern Han bronzes do not occur in Late Yayoi products.

After Emperor Guangwu re-established control over Lelang in 30 AD, he is recorded to have given a gold seal with a purple cord to the chief of Na in 57 AD, naming him a King. In 1784, a gold seal with the inscription that reads “[seal awarded to] the ruler of the state[let] of Na within Wa under the Han” was unearthed near Fukuoka City (see Figure 13.11), inspiring 200 years or so of scholarship debating whether it is real or not.⁶⁶ The bestowal of the seal is a convenient time marker for the beginning of Late Yayoi (50–250 AD). During this period, continental connections continued between the Samhan chiefdoms and North Kyushu elite, attested by parallels in grave goods (see Figure 13.12). The primary reason for continuing contacts despite the inaccessibility of Late Han bronzes was to obtain iron from the southern Peninsular coast. Flat ax-shaped ingots, such as those found at Sara-ri, were probably the main export from the Peninsula, being forged into tools and weapons in the Islands.

Very few iron artifacts survive in the archaeological record because they were often re-forged into new tools or not buried in protected environments such as graves and so rusted. The availability of iron led to the steady decrease in use of stone tools,⁶⁷ while many of the wooden agricultural tools were shod with iron tips (see Figure 13.7). The iron trade also became more important as iron weapons replaced bronze. The growing popularity of the Han Dynasty-style single-bladed iron slashing sword (see Figure 13.12, #5, #18) eventually brought an end to bronze dagger production on both sides of the Korea Strait. Iron swords became the preferred burial good in Late Yayoi mound burials, which brings us to the phenomenon of the mounded tomb cultures.

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Chapter 14

Mounded Tomb Cultures

(2–5c AD)

Pen/Insular state formation

The fall of the Wei Dynasty in 265 and the abandonment of Daifang created a power vacuum in the northern Korean Peninsula which Koguryo quickly filled. It was soon joined by the rise of Paekche in the southwestern Peninsula and finally by Silla in the southeast. These polities comprise the Three Kingdoms and encompass the period of state formation on the Peninsula (see Table 1.4). Between Paekche and Silla on the southern coast were the Kaya chiefdoms, one of which (Tae-Kaya) only approached statehood just prior to their demise.¹ Kaya, however, was extremely important to the development of the contemporaneous Kofun-period Yamato state in the Japanese archipelago (see Table 1.7).

The burial systems of all of these early states focused on monumental mounded tombs for their ruling elite. The scale of their construction clearly implies a stratified society able to provide labor and materials to build them. Local craft specialists produced elite goods for the tomb contents – bronze, gilt-bronze, gold, jade, jasper and ceramics – while far-ranging trade networks brought in exotic objects and ideas.

The Pen/Insular polities are classed as secondary states – that is, they arose in situations of contact with already extant and operating states (in this case, the Mainland dynasties). Thus, they had at their disposal ready-made models for polity administration, as well as the means to create and maintain elite status via peer polity interaction with those existing states. Still, the Pen/Insular polities that arose from the late 3c were neither mere extensions of dynastic power nor copycat borrowings of those dynastic systems. Despite being similar mounded tomb cultures, their internal dynamics and material representations are all substantially different, attesting to cultural creativity and local solutions for administrative problems.

Several Chinese dynastic records (*Weizhi*, *Liangshu*), the Japanese chronicles (*Nihon Shoki* of 720), and the Korean histories (*Samguk Yusa* and *Samguk Sagi* of the 11c and 12c) cover the Three Kingdoms

and Kofun periods, some retrospectively. The native histories attribute extremely long existences to the Pen/Insular states, with the founding dates of Silla, Koguryo and Paekche given respectively as 57, 37 and 18 BC,ⁱ and the Yamato state dated to 660 BC. But the archaeological debut of monumental tomb-building, signifying social stratification (a prerequisite for state formation), occurred only in the middle to late 3c.

Interesting additions to the material culture of the mature Pen/Insular states are items that can be traced to the Parthian (247 BC–224 AD) and Sassanian (300–650) empires of Central Asia. These include glass vessels, gold crowns – several of which are known from the region of modern Afghanistan – horse-riding equipment and armor. The passage of these objects along the incipient Silk Road resulted in their use and emulation by the receiving cultures and ultimate burial in the mounded tombs of the elite. The Northern Wei (386–534), a dynasty established in the northern Mainland by the Toba branch of the Xianbei, seemed to have been the intermediary for many of the imports, and their steppe heritage can also be seen in the Pen/Insular material culture.

On the Peninsula

Koguryo and Paekche origins

As introduced in Chapter 13, the Koguryo peoples of the eastern Manchurian massif were deeply affected by the establishment of the Han commanderies in the region. WANG Mang, besides using their horse-riders as cavalry, also decreed the assassination of their king, turning the Koguryo into enemies rather than allies. Thus, the dynastic histories speak of many Koguryo raids on the commanderies during Late Han and of Koguryo's receipt of tribute from the Okcho peoples of the eastern Peninsular coast.

The early Koguryo culture in the Hun River region (see Figure 13.1) is now acknowledged as part of the Cholbon-Puyo culture characteristic of the eastern Manchurian Basin. Koguryo stone-mounded tombs yield gold earrings similar to those from the Laoheshen cemetery of Puyo.² In the 4c, Koguryo elites moved their capital from the Hun River to the Yalu River valley, where two walled sites are paired: a round mountain fortress named Wandu (K. Hwando), meaning 'circular capital' (Figure 14.1, lower right) and a squared walled site of 50ha named Kungnae-song located on the plains of modern Ji'an City.³ Archaeologists believe that these

ⁱ From this chapter onward, only BC dates will be marked, or both BC and AD when there is a millennial transition; unmarked are AD.

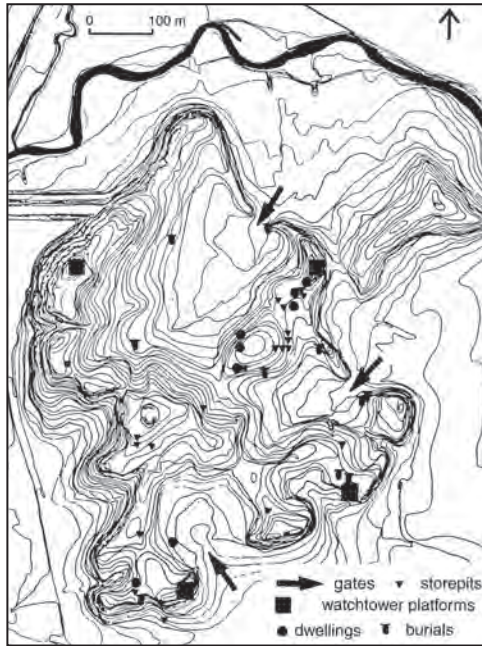


Figure 14.1 Early walled fortresses of Paekche and Koguryo

Early walls followed topographic contours while late walls were geometric in outline.

The Mongchon walled site near Seoul (above and left) was possibly a Paekche military fortress, given its horse trappings and watchtowers; no elite female items (such as hairpins) were excavated that might have marked it as a palace site.

The Shanchengzi site (below) may correspond to the historically known Koguryo capital of Wandu (K. Hwando). It sits in a natural mountain bowl of 290ha between walls extending along the back ridge (A) and front cliff face. No features remain except a pond (B) that served as a reservoir.



operated in tandem, Hwando being a refuge in times of war and Kungnae-song the main peacetime capital.⁴

Living in a land-locked country, Koguryo elites looked for arable land and a sea outlet at the mouth of the Yalu River, but their expedition down the Yalu in 242 incurred the wrath of the Wei Dynasty, which had revived the Daifang commandery in 238. The Wei reprisal in 244 (Figure 14.2) destroyed Koguryo's capital, ruling structure, and economic system of coastal exchange with the Okcho; many Koguryo escaped to Okcho territory. In 286, Koguryo's neighbour, Puyo, was attacked and destroyed by the Xianbei Murong tribe, with Puyo peoples taking refuge in the Korean Peninsula. Koguryo re-constituted itself enough to lay waste to the Lelang

Figure 14.2 Koguryo interactions with surrounding peoples in the 3–4c

Circled is the Koguryo homeland, with the most florescent Koguryo culture concentrated in Ji'an City, where the capital Kungnae-song was located. Capitals of Paekche (Han-song, Ungjin and Sabi) and of Silla (Kum-song) were located in the southern Peninsula. Kaya sites mentioned were in Pon-Kaya near modern Kimhae City.



commandery in 313 and to Daifang in 314, but it sustained attacks by the Murong in 341. Recovering, in the late 4c, it “underwent a rapid and profound transformation from a resilient regional authority struggling to preserve its sovereignty to a stable bureaucratic state”.⁵ No doubt this resurgence was aided by the acquisition of coastal farmlands in the lower Taedong River valley (old Lelang territory); in 427, a new Koguryo capital, Pyongyang-song, was built near the old commandery headquarters. Pyongyang is retained today as the name of the current North Korean capital.

The fact that many Koguryo remains, including the important Kungnae-song capital and the General’s Tomb among hundreds of other tombs, are located in modern China has been the source of international friction, with both Koreas and China wanting to claim Koguryo as their own. That the Koguryo spoke a Tungusic, not a Chinese, language gives special weight to the Koreas’ claim. However, Koguryo territory at its greatest extended from south of the

Han River basin in the central Peninsula into the upper Manchurian Basin, crossing all current national boundaries in the region. Koguryo belonged only to itself, and its historicity needs to be acknowledged separately from what and who came after it.

The Paekche are known to have been an elite group of refugees who were granted lands in the Han River basin, near present-day Seoul; their name possibly derives from a Mahan polity the Chinese knew as Bochi (K. Pai-chi).⁶ However, *when* this happened and *where* they came from are two very contested questions, with many historians and archaeologists putting a 1c BC date on Paekche appearance,⁷ though archaeological remains indicating a stratified society appear only in the 4c. The *Samguk Sagi* names the Paekche capital as Hansong, but it is not clear which archaeological site this name correlates with, if any. On purely archaeological grounds, two adjacent sites are considered Paekche's early capitals; like Koguryo's, they are a paired rounded mountain fortress called Mongchon (see Figure 14.1, upper) and a geometric walled site nearby on the alluvial plain called Pungnap. The Pungnap walled site, a fat rectangle in shape, enclosed 3.5km within walls that were 43m wide at the base and 11m high; construction had begun in the late 3c.⁸ In keeping with the character of an elite site, excavated remains from Pungnap include roof tiles, ritual and utilitarian ceramics, sacrificed horses and cows, sea bream bones, mica and apricot pits.⁹

Paekche and Koguryo share a type of pyramidal tomb structure (Figure 14.3) and foundation myths; thus, both folklore traditions

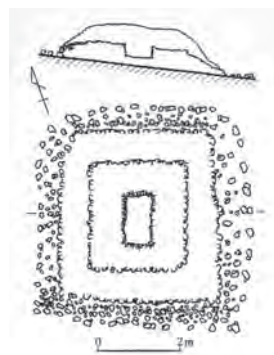


Figure 14.3 Indigenous tomb structures of Koguryo and Paekche

Early Koguryo tombs on the Hun River were small, low mounds of cobbles containing a plain burial (above). Stone-piled tombs continued and were even copied in the Japanese Islands.

By the 4c, low pyramid tombs topped with token earthen mounds were being built; this type was copied by Paekche in the 4–5c, as in the Sokchong-dong cemetery in the Han River basin (below). The pyramid was monumentalized in the 5–6c as exemplified by the General's Tomb (left) near the Kungnae-song capital. Because the burial chamber opened to the side of the pyramid, most grave goods in this type of tomb have been looted.



and material culture indicate close connections between them. Historically, both Koguryo and Paekche elite claimed Puyo descent, which fits in well with the known destruction of Puyo in the late 3c, the dispersal of Puyo peoples, and the rise of both Koguryo and Paekche in the 4c. The mythological similarities are endlessly fascinating, but most importantly, the adoption of founder myths that name the Puyo, a powerful Han Dynasty ally, underwrote elite claims to legitimacy in both cultures.¹⁰

Kaya and Silla origins

The southeastern portion of the Korean Peninsula is often referred to as Yongnam. This was the locus of the Chinhan and Pyonhan polities of the Samhan, both noted for their iron production. It appears that the Pyonhan region emerged first into history as the locus of the Kaya chiefdoms, while Silla allegedly grew out of a small Chinhan polity called Saro.ⁱⁱ Archaeologically Yongnam had a common culture, with ceramics becoming differentiated between Silla and Kaya at the end of the 3c, perhaps even accompanied by warfare.¹¹ After the rise of Silla in the 5c, divergences are evident in mature tomb constructions (Figure 14.4).

As with Koguryo and Paekche, both Kaya and Silla are reputed to have had foreign elite connections. Some scholars claim that the first ruler of Kaya, King Suro, was an immigrant from the northwestern Peninsula,¹² but the 13c *Samguk Yusa* states that he descended from heaven onto a mountain top; in any case the nine chiefs of the Pyonhan polities elevated him as their king.¹³ Meanwhile the *Samguk Yusa* further states that Suro took an Indian princess from Ayur'a (Ayodhya) as his bride and that a festival commemorating the arrival of her ship continued until the 11c.¹⁴ These apocryphal stories conform to trade with Lelang as inaugurated with the iron industry, and other material culture traits speak of a South Asian trade connection.¹⁵ External links surely accelerated socio-political development.

Also for Silla, the arrival of three new clans apparently stimulated further state development. It is not known exactly *when* or *from where* these migrant elites appeared, but if from Lelang territory after its destruction by Koguryo in 313, the sudden appearance of large wood-chamber tombs and gold artifacts in Silla territory would be explained. The names of the ruling Kim clan and the polity's capital Kumsong both refer to 'gold' (*kim/kum*), and Silla in the 5–6c was

ⁱⁱ The name change from Saro to Silla did not occur until the late 4c/early 5c (Barnes 2001: 40), but to avoid confusion, all references to the early state here will call it Silla.

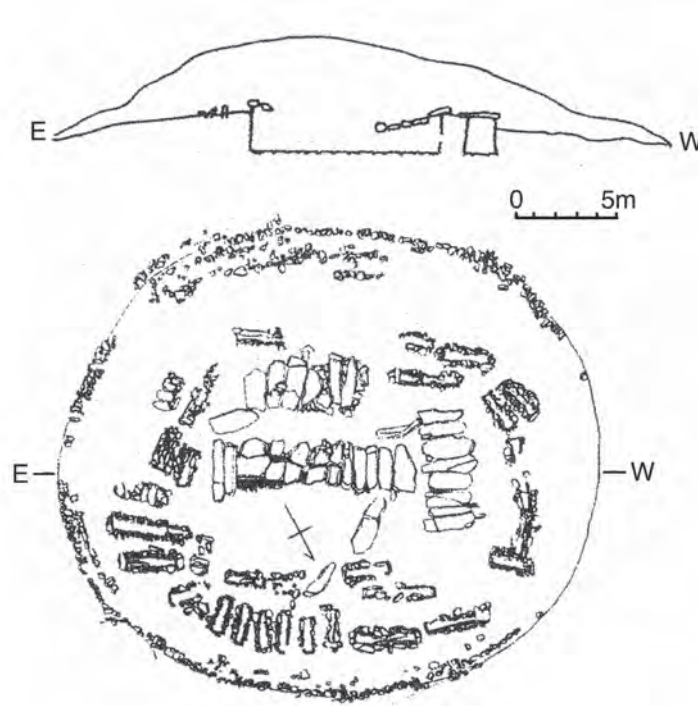
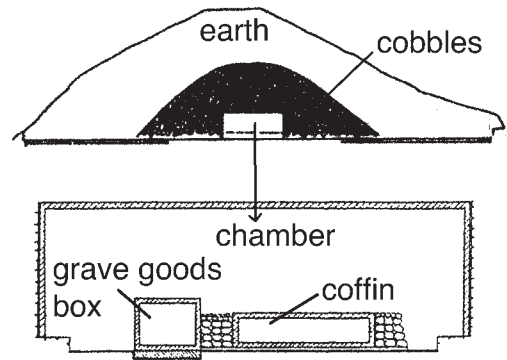


Figure 14.4 Mature Kaya and Silla tombs (not to scale)

Royal Silla tombs tower over visitors in the Tumulus Park (above left) in downtown Kyongju City. The chamber area of one tomb is open as a museum. The section drawing above right illustrates the construction of Silla Tomb #155.

In contrast, royal Tae-Kaya tombs sit high on an inaccessible mountain ridge (lower right). Their pit-style stone chambers were often double or triple the length of a person. The plan and section of Tae-Kaya Chisan-dong Tomb #44 (lower left) show several stone-lidded stone chambers covered by one earthen mound. The multiple burials have been re-interpreted as human sacrifices.

Box 14.1 Of gold and crowns

A gold buckle from Lelang (below) sports granulation and embedded gemstones. These gold-working techniques manifest themselves in Silla gold, but in more simplified forms. The technology of gold-working can be traced westward to Central Asian sources.

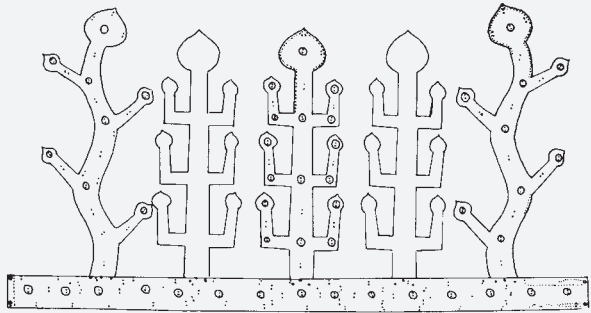
Silla gold-working is characterized by sheet gold and gold wire manipulation. Sheets were cut to shape and joined with wire. The sheets could be decorated with openwork or repoussé (hammering a decoration from the reverse side, such as the dots or scales on the lower left of the gold cap below); twisted wire and chains served to suspend spangles, while gilt bronze or gilt iron rings served as anchors. Earrings could incorporate curved beads of jadeite (as

below), whose only source is in the Japanese Islands, or occasionally had patterns laid by granulation (right). Similar items occurred as pendants suspended from headwear, as on this Silla crown (far right). These crowns often consisted of cutouts resembling the steppe 'tree of life' and antlers.



Gold crowns are also known from Koguryo, while Kaya and Yamato elite often imitated them in silvered iron, sheet silver or gilt bronze. Kaya crowns in addition could sport tufted-end protuberances crafted of twisted metal, and one Yamato example has cutout horses.

Five gold crowns with the tree and antler construction have been excavated in tombs of the royal Silla cemetery. Earlier Silla crowns were made of silver, later ones of bronze.



noted for its gold artifacts (BOX 14.1), the design of some items being attributed to Koguryo (earrings, openwork crown ornaments, gilt-bronze saddle parts).¹⁶ In contrast, the curved beads made of jadeite incorporated into gold crown and belt pendants and earrings were imported from the Japanese Islands.¹⁷ These precious objects were preserved in Silla royal tombs because of the latter's unusual construction: a wooden chamber containing a coffin and grave goods box, mounded over first with cobbles and then with earth (see Figure 14.4). These constructional attributes derived from different sources: the wooden chamber and earthen cover from Han Dynasty tombs, but the mounded cobbles from early Koguryo. Lack of a corridor to access the tomb chamber meant that looting the tomb would require digging through a pile of cobbles (think of a pile of oranges or sand) which would keep falling back into the hole.

The Kumsong capital area of early Silla occupied an alluvial fan in the center of the Kyongju Basin (see Figure 15.7). The Silla royal cemetery (now Tumulus Park) on the alluvial plain sits near a half-moon-shaped hill positioned along one of the main Basin rivers. The hill, reinforced with perimeter walls, was thus called Panwol-song ('half-moon fortress'ⁱⁱⁱ); a dock and a bridge accessed the river and beyond. Four fortresses, on mountaintops surrounding the Basin, protected the capital area. All of these fortresses, including Panwol-song, were topographically defined and so differed from the Koguryo–Paekche pattern for capitals of paired geometric and topographic walled sites. Northern Kyongju City has yielded an iron-working site, Hwangsong-dong, operational from the 1c to the 4c.¹⁸ Excavation revealed one pit-building with a forging hearth dating to the 1c, but the remains in two adjacent workshop areas date to the early Three Kingdoms period. The eastern section housed eight pit-buildings with internal hearths for smelting and two slag piles; the western section had two structures for forging, with one outdoor hearth and two charcoal kilns. Exports from this area might have competed with those from the Kaya area on the southern coast.

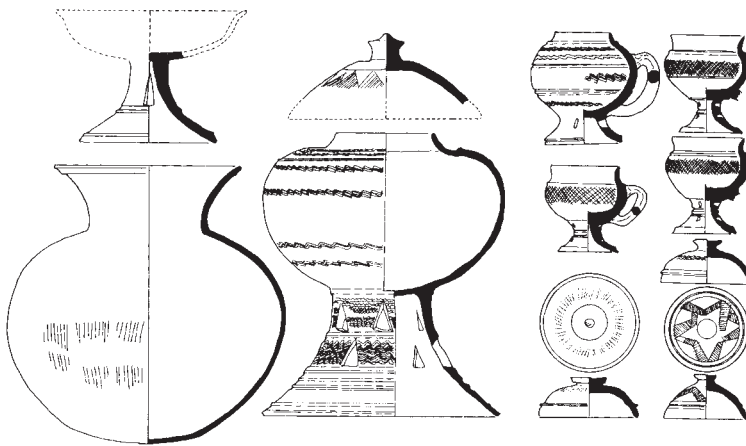
Turning to Kaya, this was not one polity but a collection of up to seven chiefdoms in the Nakdong River valley, western tributaries to the Nakdong, and the south-central coast.¹⁹ Archaeologically, Kaya remains can be divided into Early and Late, with development along the southern coast focused on the polity of Pon-Kaya (Original Kaya, also known as Kungwan-Kaya) characterizing the early confederated phase, and Tae-Kaya (Great Kaya) in the upper Nakdong valley forming the focus of the later confederated phase.²⁰ The standard view has been that none of these chiefdoms achieved state-level

ⁱⁱⁱ Also just called Wol-song ('moon fortress').



Figure 14.5 Non-iron prestige goods exchanged among late 4c–early 5c elite

The 4c Taesong-dong tombs in Pon-Kaya yielded a number of items, some from Yamato in addition to more traditional continental bronzes. Around the TLV bronze mirror in the center clockwise from top are: bronze tiger belt hook, mirror fragment and bronze boss, disk for staff, faceted crystal beads, 4 talc projectile points, 8 bronze staff ferrules (shown upside down), curved beads (2 jade and 1 rock crystal), 2 bronze spiral bosses. The beads, talc objects, bronze ferrules and spirals are all from Yamato.



The 5c Nonaka Tomb in modern Osaka City contained Silla-ware ceramics, illustrating the cachet of new stoneware being produced in the Yongnam area. This ware was developed from Kaya stoneware and bears combed decoration. Kaya craftspeople emigrating to the Islands established large kilns in the Osaka region, initiating the Sué ware tradition of stoneware.

organization, but recently Tae-Kaya has been proposed as a state that coalesced just before its takeover by Silla in 562.²¹ The rulers of Tae-Kaya sent a tribute mission to the Southern Qi Dynasty (479–502).²²

Pon-Kaya formed in the mid-3c,²³ coincident with the construction of the royal cemetery at Taesong-dong in modern Kimhae City.²⁴ In the 4c, the tombs held large wooden chambers replete with exotic goods (Figure 14.5, upper): Han bronze mirrors, steppe-style iron cauldrons, and dozens of stoneware²⁵ vessels holding food offerings for the dead. Also present were various beadstone and bronze goods

from the Japanese Islands. The appearance of pit-style stone chambers at the Yean-ri site in the mid-4c²⁶ might be related to communications with the Wa. These artifacts and features tie in with the two great economic functions of Pon-Kaya: the iron trade continuing on from the preceding Pyonhan activities, and stoneware production. The latter was a new industry; its technology spread into Silla territory, giving rise to Silla-ware (Figure 14.5, lower), and was then exported to the Japanese Islands in the 5c, initiating the Sué-ware tradition.

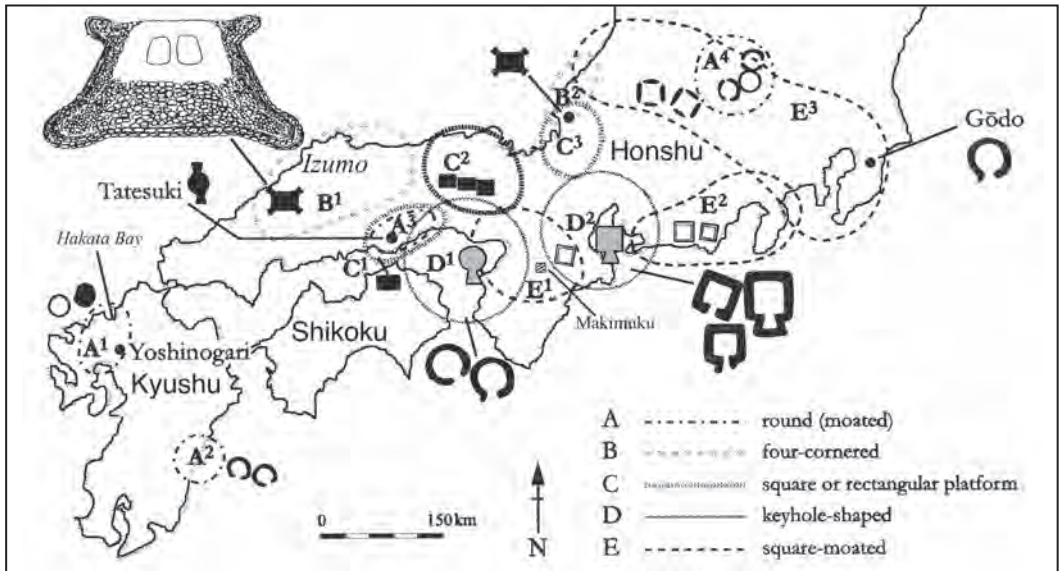
Recent trench excavations of a 45m-high hill within Kimhae City adjacent to the Taesong-dong cemetery have exposed an earthen wall and moat, pit-buildings and pillared building post holes, iron slag, horse bones, divination bones, and imported ceramics. This site, Ponghwangdae, is now thought to be the capital of Pon-Kaya mentioned in the *Samguk Yusa* as Chongbal-song.²⁷ It was networked with several sites in the Kimhae area along the coastline of the time; these sites were equipped with port and storage facilities, ostensibly for the trading of iron and perhaps ceramics.

In the Islands

From mound-burials to mounded tombs

In Chapter 13, we left Kyushu in the late Middle Yayoi period, when suddenly the supply of bronze mirrors was cut off by troubles in Lelang. The archaeological record of the subsequent Late Yayoi period reveals several trends that suggest increased competition throughout the western archipelago. Changes in settlement pattern appear at this time: in North Kyushu, small settlements were abandoned and larger sites became more populous in a process of nucleation; in Eastern Seto, settlements were abandoned and relocated on higher ground.²⁸ Many of these new or expanded settlements were fortified by v-shaped ditches, as at Yoshinogari (BOX 14.2); and indeed, the *Weizhi* mentions a period of disturbances (J. *Wa no Hanran*) between 147 and 189. Interestingly, beginning in 150, mirror imports picked up again but mainly flowed into Eastern Seto rather than North Kyushu.²⁹ It is possible that renewed competition for mirrors stimulated some of the disturbances.

In the second half of Late Yayoi, low-rise mounded burials began to appear regularly in regions beyond Kyushu, taking various shapes by cultural preference (Figure 14.6). Most of these shapes grew out of the moated square and round precincts of elite family burial in Middle Yayoi. Multiple burials became common, interpreted as families with ascribed rank; no clear hierarchies of burials are apparent in Late Yayoi.³⁰ The regional groupings of mound-burial types, however,



suggest that supra-community cultural identifications developed at this time. The Izumo region is a particular case in point, with its unusual four-tailed square mounds. This area resisted the spread of keyhole tombs in the next phase and became a complement to Yamato power. The Tatesuki mound-burial in the central Inland Sea region also represents a unique regional manifestation of a round mound with two projections. Its burial facility consisted of a Han-type wood chamber and coffin, while spirals decorated a carved stone and jar stand – the latter a precursor to Kofun-period haniwa. This area is believed to have been a major contributor to the formation of the succeeding Mounded Tomb Culture.³¹

By the early 3c, inter-regional contact and interchange began to overcome regional differences, especially through the Inland Sea region.³² Shipping of iron from the southern Peninsula was an important aspect of this interchange; ports of trade were established in the Hakata region of North Kyushu and along the Inland Sea coast into Osaka Bay. These sites were occupied not only by locals but also by Yayoi from other regions as well as peoples from across the straits – identified by their native pottery traditions which indicate intermingling and mutual acculturation. The most significant non-local ceramics found in North Kyushu are those from the Kinai region (modern Osaka, Nara and Kyoto prefectures), which became the political center in the 3c, suggesting direct elite involvement in the iron trade. It is within this nexus of supra-regional relationships that a Kinai ruler came to the attention of the Wei Dynasty and reopened communications with the Daifang commandery.

Figure 14.6 Late Yayoi mound-burials (in black) and Kofun-period tombs (in gray)

Regional variations of mound-burials range from round to square, moated or unmoated. Exceptional shapes are the square or rectangular mounds of the Japan Sea coast having corner tails (B¹ and B²). The keyhole tomb is proposed to have developed out of a round moated precinct with an incomplete moat, leaving a land bridge access to the center. Gradually the land bridge grew into a rectangular or triangular frontal projection and both rear and front mounds increased in height. The moated round burial precincts of the Kinai region (D¹) became the round keyhole tomb, while the square moated precincts became the square keyhole tombs (D²). Mound-burials measure from 10 to 40m, but the first keyhole tombs in the early 3c doubled that to ca. 90m.

BOX 14.2 Yoshinogari site

Yoshinogari claims an unusual place in Japanese archaeology since its discovery in the late 1980s. With its moated structure and watchtower, it conforms to the *Weizhi* descriptions of Himiko's capital, but it is entirely the wrong location to be so. It is isolated from the Fukuoka Plains where the rich bronze burials are found, and it is in Kyushu rather than Yamato (now understood to have been Himiko's Yamatai polity). Nevertheless, media interest exploiting the supposed Himiko link and tourism potential spurred government investment in developing Yoshinogari as a heritage park. An entire moated village of pit-houses, granaries and watchtowers has been reconstructed and supplied with costumed guides and a Yayoi Life Museum.

Because of the long span of occupation, the site character cannot be encapsulated in one generalization but must be dissected by phase and understood within the context of society at that time. In all, over 300 pit-buildings and more than 2500 jar burials have been excavated at Yoshinogari.

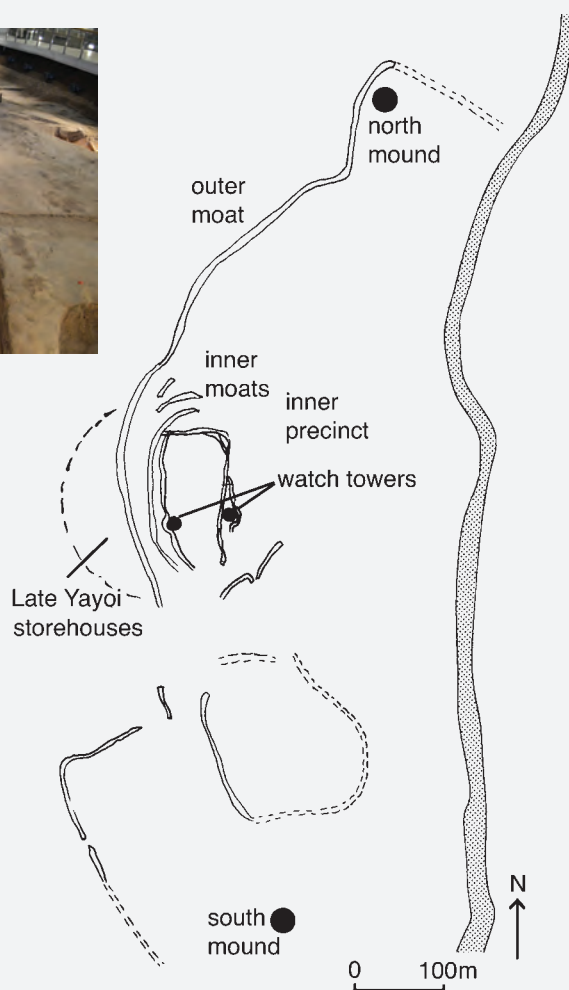
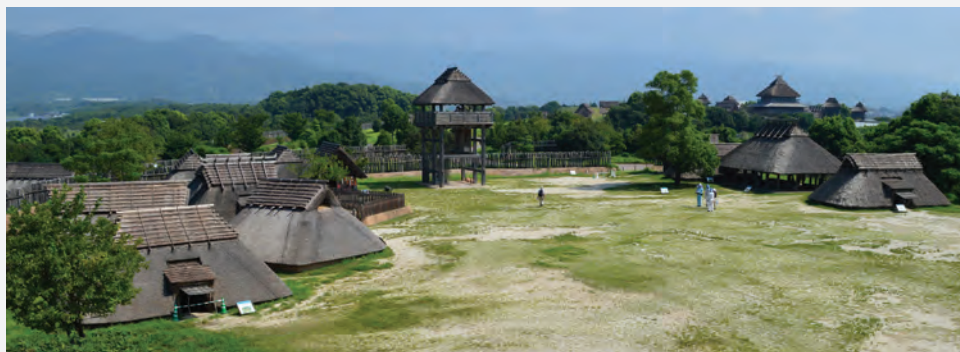
Pit-houses, storage pits, a jar-burial cemetery and a village ditch attest to a small 3ha settlement in Early Yayoi (see Chapter 11); in Middle Yayoi the site grew to 20ha without an enclosing ditch (Chapter 13). At the end of Middle Yayoi, a large moat was constructed to enclose the now 40ha site on one side – the other protected by the river; and in late Late Yayoi the site acquired inner moats equipped with six watchtowers – interpreted as marking an elite residential precinct (Chapter 14). The latter efforts at fortification may well have been due to the Wa Disturbances in the mid-2c just before Himiko was allegedly chosen as leader of Yamatai.

In Middle Yayoi (Chapter 13) around 100 BC, a large oval mound 46m long and 4.5m high was built of tamped earth north of the settlement. In its top surface were 14 jar burials; the oldest (#1006), in the center, was also the largest, about twice the usual size; its two jars fitted together at the mouths, measuring 2.5m long x 1.2m wide, and the jar pit measured 4 x 4m. One of the satellite burials (#1002) dating around 0 AD contained Peninsular imports: a rare hilted dagger cast as one piece and 76 cylindrical glass beads. This mound began the low-rise mound-burial tradition in North Kyushu, which spread into the western archipelago in Late Yayoi.

Three views of Yoshinogari opposite:

- **Top:** panorama of the inner precinct reconstructions, looking east: several pit-buildings, an open-air pavilion, and a watchtower
- **Middle:** a fish-eye view of the open mound excavation, revealing crushed burial jars in place; the size of the excavation can be ascertained by the walkway above the site
- **Bottom:** one of the reconstructed watchtowers overlooking a moat and palisade

The simplified site plan shows the main structural features as of Late Yayoi. Not shown are all the pit-buildings, burials, and earlier and later materials – it is a much more complicated site than pictured here.



Daifang and Queen Himiko

The *Weizhi* states that following the Wa Disturbances, “the people agreed upon a woman for their ruler. Her name was Pimiko [J. Himiko].”³³ This could have been around 190. She is next mentioned in 238 when the Wei re-established Daifang under their control. Himiko, described as the Queen of [the] Wa, sent a congratulatory embassy to the Wei court with follow-up embassies in 242 and 247. She received vast amounts of diplomatic gifts, including bronze mirrors, and was visited in return by a Wei emissary in 240. Her country of Yamatai is described in the *Weizhi* as exerting hegemonic rule over several other Wa polities (*guo*).

Researchers for many decades placed Himiko in North Kyushu, the locus of all of the rich burials in Japan containing Han Dynasty goods. But the consensus has now shifted to the Nara Basin (in Nara Prefecture),^{iv} whose traditional place-name designation as Yamato is identified as the same name as Yamatai^v from different perspectives (Japanese vs. Chinese transliteration).³⁴ Queen Himiko is an enigma since she does not appear in the historic list of Yamato rulers, but that can be explained with reference to the Confucian patriarchal philosophy under which the *Nihon Shoki* was compiled. The *Weizhi* states that Himiko died after 247 and was buried in a large tomb 100 paces across.³⁵ This historically attested event is now used to define the beginning of the Kofun period at 250, superseding a previous starting point of 400. It will likely be pushed back even farther, as the early 3c is now referred to as the Initial Kofun period.³⁶

The problem of dealing with Himiko involves differences between the *Nihon Shoki* and *Weizhi* accounts as well as dating the early mounded tombs. The first monumental mounded tomb is acknowledged to be Hashihaka in the southeastern Nara Basin, which has traditionally been assigned to a seeress aunt of the first historically attested Yamato sovereign, Sujin. It has been proposed that this seeress aunt as written into the *Nihon Shoki* was the same person as Himiko as written into the *Weizhi*.³⁷ Ceramic typology places Hashihaka at around 270 or 280, not so long after the end of the Wei Dynasty in 265 but almost 20 years after Himiko’s last mention in the *Weizhi*. Interestingly, a male king was chosen to replace her, but the *Weizhi* says “the people would not obey him. Assassination and murder followed; more than one thousand were thus slain.”³⁸ Order was restored when Himiko’s 14-year-old relative,

^{iv} Opinion changed after the excavation of the Kurotsuka Tomb in Nara in 1997 (see Edwards 1999).

^v The spelling Yamai has also been proposed, particularly by those favoring a Kyushu location (Takemoto 1983).

a girl named Iyo, was appointed as ruler; she subsequently sent an embassy to the Wei Court. These Chinese records provide a historical framework for viewing the archaeological coalescence of the mounded tomb culture in the western archipelago.

Kofun bunka, the mounded tomb culture (MTC) of Japan

The Kofun period has in the past been defined by the appearance of the keyhole-shaped tomb with a round rear mound (especially Hashihaka), but this definition is now on shaky ground because the keyhole shape is now recognized back to the early 3c. It first appeared in the Makimuku tomb cluster in the southeastern Nara Basin and subsequently spread across all Late Yayoi mound-burial cultures except where B¹ square burials with four projections existed (see Figure 14.6). However, the keyhole with round rear mound (round keyhole) was not the only popular mounded tomb shape (Figure 14.7): we also find keyhole tombs with square rear mounds (square

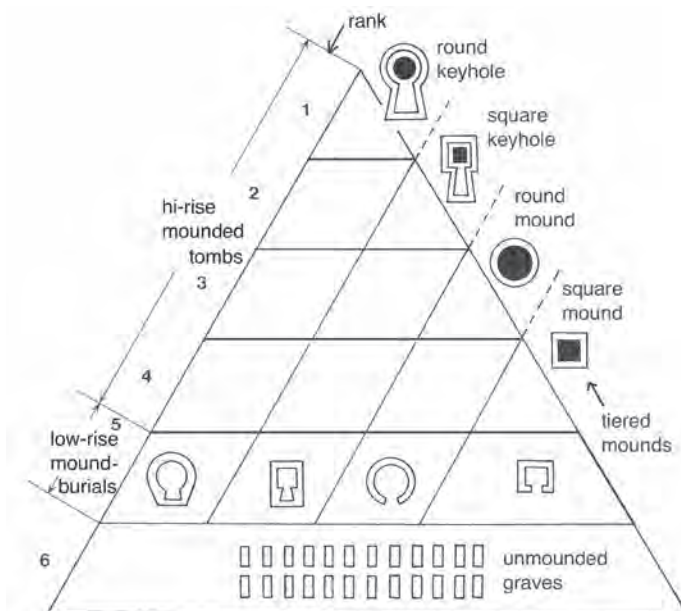
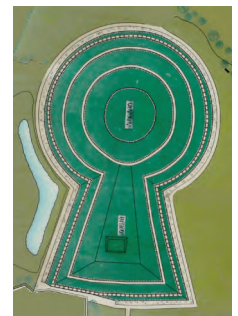


Figure 14.7 Keyhole tomb shape and size classes

Early Kofun keyhole tombs come in three size classes: small (<60m), medium (60–160m), and large (>160m). The Horaisan Tomb (left, 227m long x 18m high) towers over modern structures in Nara City; its round mound is to the right. The mounds were often built in tiers, shown below.

The graph shows an idealized array of the shapes and sizes of Early Kofun tombs, with high-rise mounded tombs evolving from low-rise Late Yayoi mound-burials. The ranks indicate graduated sizes (1 being the highest). Commoner burials in unmounded graves rank lowest.



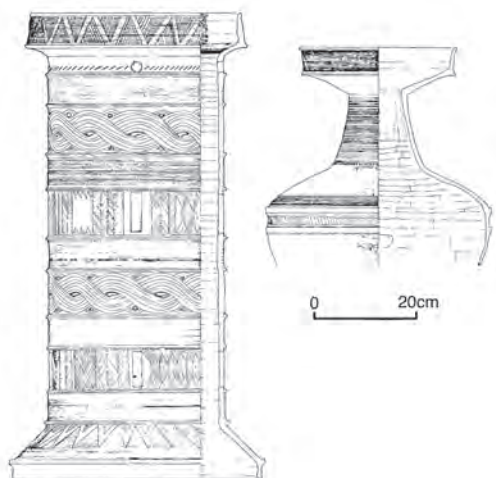


Figure 14.8 Haniwa cylinders and sculptures

Haniwa cylinders grew out of the Late Yayoi tradition of placing jars and jar-stands (above right) on mid-Seto mound-burials. An integral cylinder-and-jar Kofun-period form (above left) developed from the Late Yayoi jar and cylinder combination. Yayoi cylinders were often decorated; Kofun ones were plain or mounted with sculptures (right). Initial forms were limited to shields, parasols and houses, but human forms date from the 5c. The sculptural tradition was taken up with gusto by chieftains in the Kanto region during the 6c.

The *Nihon Shoki* states that humans were portrayed to replace sacrificial victims; no such victims have been found in the Japanese Islands, but several are known for Kaya. The haniwa tradition differs from Mainland tomb figurines, as haniwa were placed outside on the tomb surface rather than inside the burial chamber; they more resemble the spirit paths that developed out of Han sculptures on tombs (see Figure 12.12).



keyhole) as well as square or round mounds with no projections. Their evolution from low-rise to high-rise mounds is accompanied by a differential in rank – round keyhole tombs occupying the highest level.

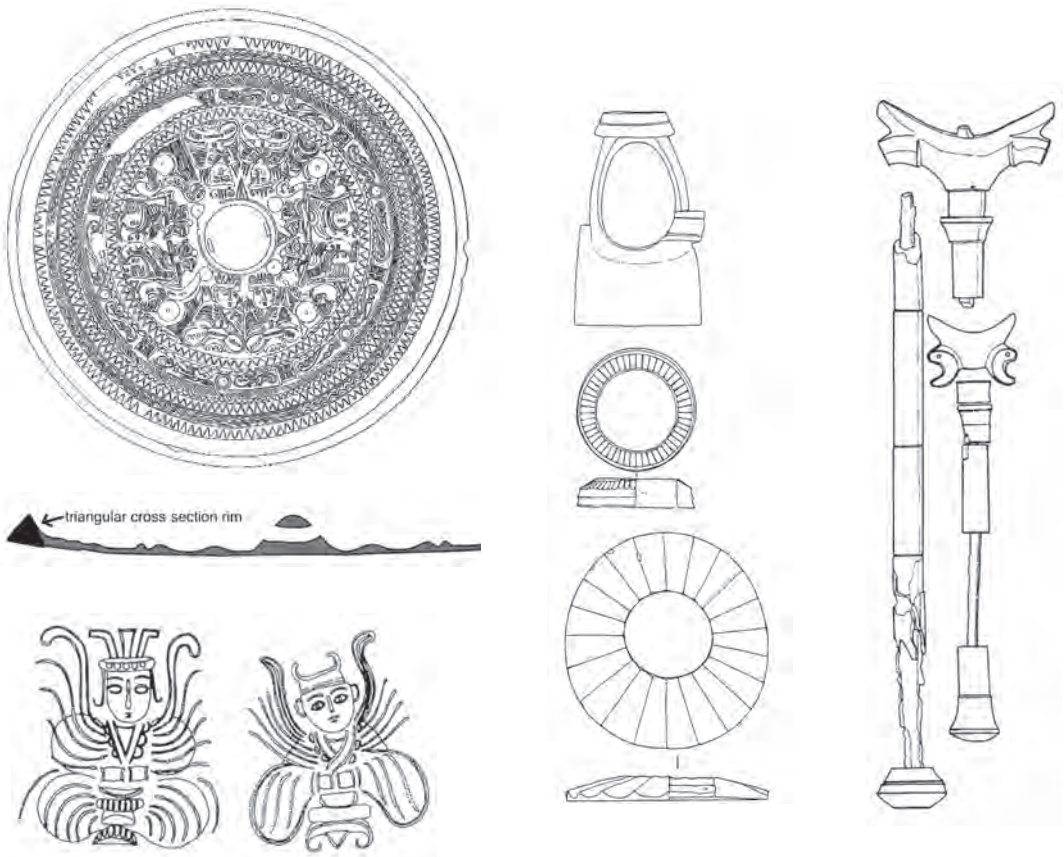
Until the late 5c, keyhole tombs had their main burials dug into the top of the rear mound; the tomb chambers were pit-style stone chambers or pits with molded clay floors receiving hollowed-out log coffins (with or without the stone chamber). The grave area was often outlined on the surface by clay cylinders called *haniwa* ('clay ring') embedded in the ground (Figure 14.8). Deriving from a jar stand, these cylinders became the bases for representational sculptures. The major grave goods between 250 and 300 were bronze mirrors from the Late Han and Wei Dynasties but also a triangular-rimmed variety

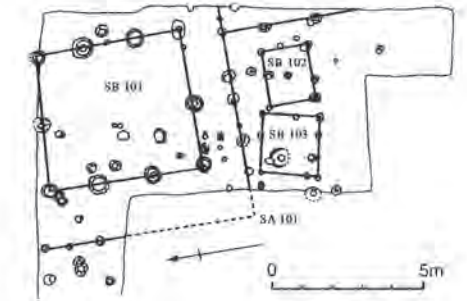
bearing the images of the Chinese folk deities, the Queen Mother of the West and the King Father of the East. In the 4c, beadstone objects were added to the burial repertoire, with three kinds of 'bracelets', cylindrical and curved beads, and staffs made of jade, jasper and green tuff (Figure 14.9). The beadstone objects found in the Pon-Kaya region (see Figure 14.5) come from this craft matrix.

Following on from the Wei gift of bronze mirrors to Himiko, Japanese archaeologists hypothesize that the mirrors were further used within the Japanese Islands as gifts from rulers to subordinates in solidifying alliance relations.³⁹ However, mention of bronze mirrors in the *Nihon Shoki* stories only portray them as being offered to elite persons by underlings; no anecdotes survive of how those underlings originally obtained the mirrors. Moreover, the images on the bronze mirrors have not been taken into account when postulating their meaning and use within Early Kofun society. Much of the material culture of Early Kofun and information about the woman allegedly buried in Hashihaka Tomb (Figure 14.10) can be correlated with aspects of Queen Mother of the West mythology:

Figure 14.9 Early Kofun grave goods

Deity-beast mirrors (upper left) bear images of Queen Mother of the West and King Father of the East (lower left). Many have a rim that is triangular in cross section (middle left). Three kinds of bracelets (center) and variously shaped staffs (right) were made of pseudo-jades: green tuff and jasper.





The Mitsudera site (modeled above) illustrates a moated housestead of a regional elite. Similar housesteads have been excavated in Nara, greatly contrasting with the less fortified Makimuku palace. Residences of the rulers, such as Makimuku, were abandoned with the death of the sovereign and built anew elsewhere by the successor, leading to a shifting capital system in the Kofun period.

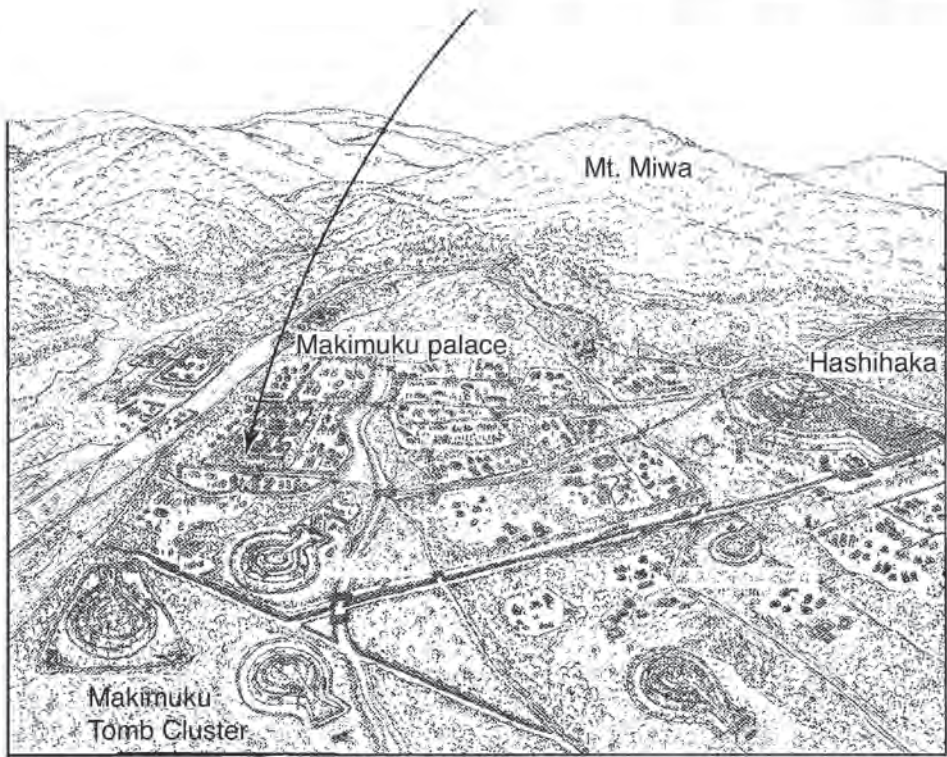
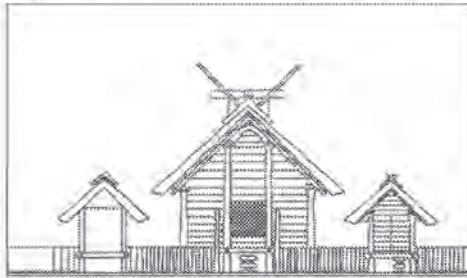


Figure 14.10 Kofun-period housesteads and palaces

This southeastern Nara Basin is named in the chronicles as the palace of the sovereign Sujin. Excavations at the foot of Mt. Miwa revealed an extensive residential compound in which two buildings were interpreted as part of a shrine structure. Below the palace on the alluvial terrace sit the early keyhole tombs of the Makimuku Tomb Cluster, with Hashihaka to the right.

living in mountains (*kofun*), dwelling in stone apartments (pit-style stone chambers), loving jade (jadeite and other green beadstone objects), carrying a staff (staffs), sitting on stools, being married to a god, etc.⁴⁰ In opposition, the hierarchization of Late Yayoi and Early Kofun culture has been inductively monitored entirely from the excavated material, most recently using network analysis.⁴¹ Thus, radically different interpretations of Early Kofun socio-politics have been obtained with or without reference to the mirror iconography.

The polity that spawned the MTC is known variously as Miwa or Shiki, its territory encompassing the southeastern Nara Basin.⁴² The capital area at Makimuku (Figure 14.10) encompasses a palace, the Makimuku tomb cluster, and the Hashihaka Tomb. It sat at the end of the Hakata trading route through the Inland Sea, with an eastern outlet through the mountains to the Pacific coast. Not only the geographical extent of Miwa's control but also its method of control are hotly contested; I myself have argued for a theocratic regime, while others rely on elite networking alone. What is not in dispute is that the spread of the MTC happened peacefully without coercion, despite some weapons and armor found in early tombs.

Early state relations

Warfare

The Makimuku capital in Miwa was abandoned in the mid-4c as the Early Kofun political system collapsed. From this time onward, iron became a strategic good for the waging of warfare rather than an agricultural resource or prestige import. These changes were related to the gathering tension between Koguryo in the northern Peninsula and Paekche. After Koguryo attacked and destroyed what was left of the commandery areas in 313–314, it came into contact with Paekche and started pushing south into the latter's Han River basin territory. Paekche responded by appealing to Yamato leaders in the Kinai region, who arose in the wake of the Miwa polity collapse. The Paekche–Yamato connection was probably made through their mutual procurement of iron from Kaya; the alliance was sealed by the gift of a 7-branched iron sword inscribed with a date of 369 (Figure 14.11).

The late 4c–6c is thus a story of shifting alliances (Paekche+Yamato; Paekche+Silla)⁴³ and warfare (Paekche+Yamato vs. Koguryo; and Yamato+Kaya vs. Silla). Koguryo's aggression carried its forces down to the southern Peninsula, laying siege to 58 Paekche fortresses in 369; in 400 Koguryo forces reached the southern coast, decimating Pon-Kaya and pushing Wa troops out of Silla.⁴⁴ These military

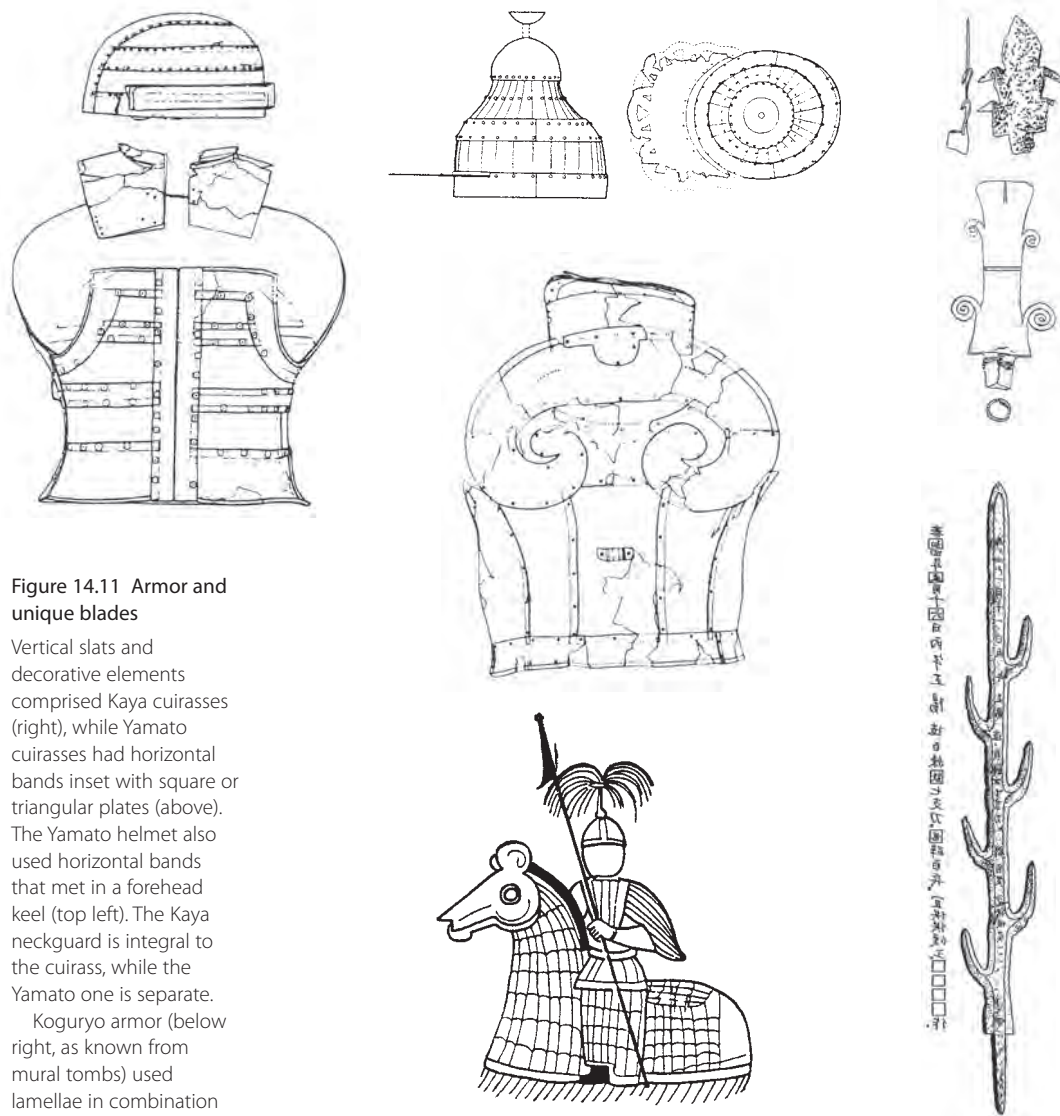


Figure 14.11 Armor and unique blades

Vertical slats and decorative elements comprised Kaya cuirasses (right), while Yamato cuirasses had horizontal bands inset with square or triangular plates (above). The Yamato helmet also used horizontal bands that met in a forehead keel (top left). The Kaya neckguard is integral to the cuirass, while the Yamato one is separate.

Koguryo armor (below right, as known from mural tombs) used lamellae in combination with slats for both horse and rider. The vertical-slatted Koguryo helmet, used also by Kaya, was turned into a visored helmet (top center, two views) in Yamato. Unusual sword and blade types include the 7-branched sword gifted to Yamato by Paekche (far right) and odd iron blades of Kaya with hooks and curlicues and with folded sockets for hafting (upper right).

exploits of King Kwanggaeto are known from a stele erected by his son in 414 in the Koguryo capital of Kungnae-song (Figure 14.12).

Following Koguryo's foray to the southern coast, burials ceased at Taesong-dong in the mid-5c, replaced by the Pokch'on-dong cemetery in modern Pusan City.⁴⁵ Yamato continued importing iron from this area and became allies of Tae-Kaya in the Nakdong River basin, which grew after this date to become the dominant Kaya polity.

Moving their capital to Pyongyang-song in 427 facilitated Koguryo's continuing harassment of the Paekche, who finally moved

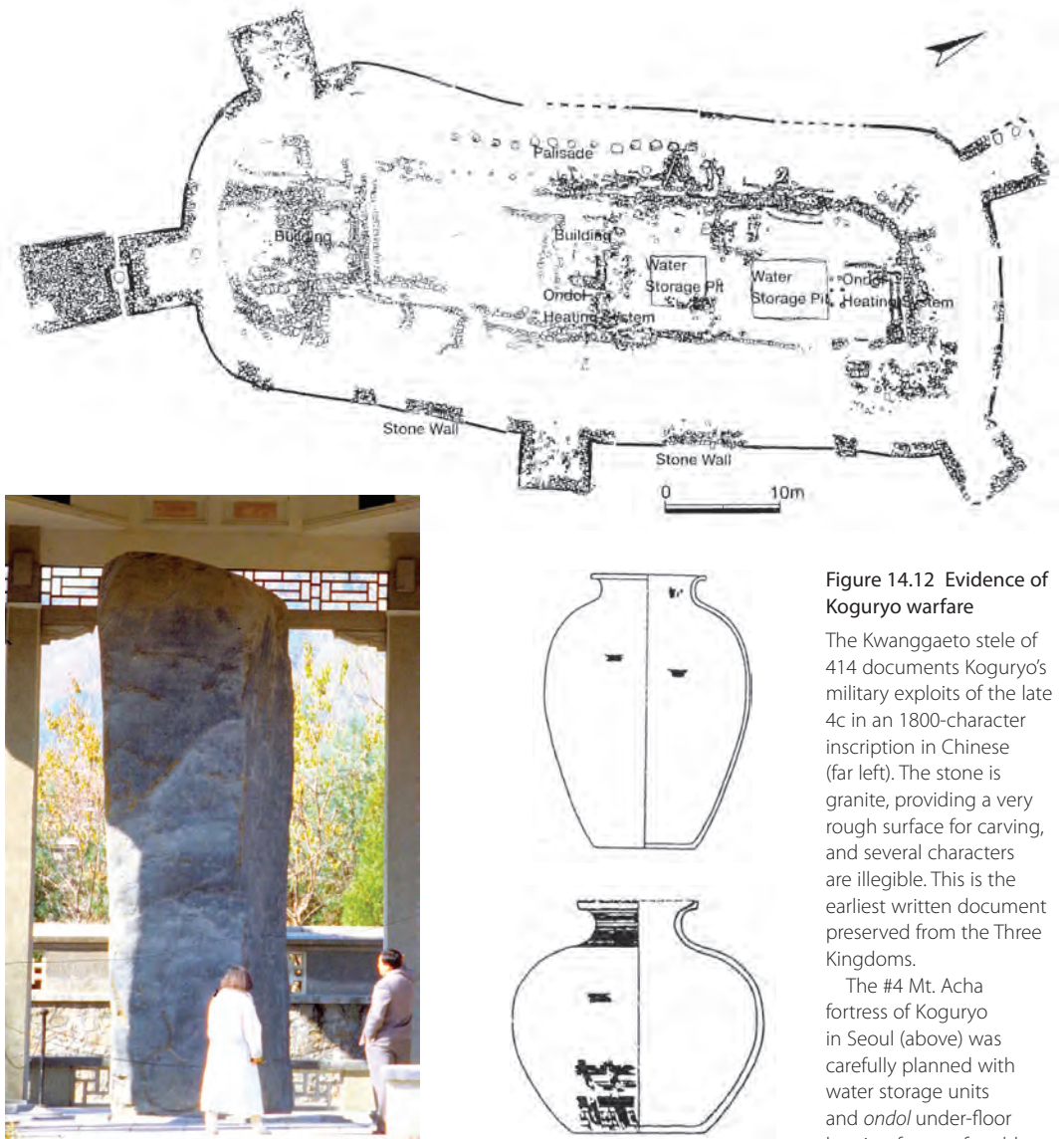


Figure 14.12 Evidence of Koguryo warfare

The Kwanggaeto stele of 414 documents Koguryo's military exploits of the late 4c in an 1800-character inscription in Chinese (far left). The stone is granite, providing a very rough surface for carving, and several characters are illegible. This is the earliest written document preserved from the Three Kingdoms.

The #4 Mt. Acha fortress of Koguryo in Seoul (above) was carefully planned with water storage units and *ondol* under-floor heating for comfortable living. Buildings with stone foundations were surrounded by a palisade and a later stone wall. Koguryo stoneware (left) found at the site was heavy and utilitarian with minimal combed decoration. The flat bases and narrow necks provided stable, secure storage of contents.

their own capital out of the Han River basin to the Kum River in the southwest – first to Ungjin in 474 and then to Sabi in 538 (see Figure 14.2). About 50 Koguryo fortresses have been identified in the central Peninsula extending down into the Kum River basin, often near tombs and settlements yielding Koguryo pottery.⁴⁶ The permanency of these facilities confirms that Koguryo occupied – not just raided – previous Paekche territory. Paekche's Mongchon fortress (see Figure 14.1) was used as a staging point for activities in the late 5c until the Mt. Acha fortresses were built in the early 6c (Figure 14.12).⁴⁷

The Koguryo were horse-riders, and the armor and horse-trappings that they introduced from the steppe cultures were subsequently adopted by all Pen/Insular elite. Previously, armor made first in Kaya and then in Yamato consisted mainly of cuirasses and helmets that provided chest and head cover (see Figure 14.11). Early Kaya cuirasses often incorporated intrinsic design elements suggesting on-demand production for particular chiefly consumers. Yamato cuirasses of the 5c were mass-produced with the only minor variations in shapes of the plates in the horizontal bands. Both styles of cuirass began as thonged plates; these were quickly superseded by riveted plates in Kaya, but riveting was introduced to Yamato only in the 5c by Kaya/Paekche crafters of horse-riding equipment. With the introduction of Koguryo lamellar armor, the cuirass became passé in Kaya but continued in Yamato. Lamellar armor eventually transformed into the samurai armor that is so well known today.

In the late 1940s, one archaeologist postulated that Yamato was conquered by horse-riders from the continent. Much ink has been spilled on this hypothesis,⁴⁸ but in the end, the material and documentary records do not support it.⁴⁹ The history of relations among the Pen/Insular polities is much more complicated than simple conquest in terms of population interactions, migrations, prestige goods exchange, and refugee craft production.

During the 5c, five Yamato kings petitioned various Chinese courts for titles, while Paekche elite had already received titles of “King of Paekche”, “Commissioner Bearing Credentials,” “Commander-in-Chief of Military Affairs in Paekche” and “General Stabilising the East” from the Eastern Jin Dynasty (317–420).⁵⁰ The receipt of titles from the dynastic courts was one strategy for bolstering polity status among the competing Pen/Insular states. It was also useful in consolidating power within a state. It can be argued that state formation in the Pen/Insulae was very much enhanced by the authority bestowed upon the leaders by the Chinese courts.

Writing

The events of the late 4c are told from Koguryo’s point of view in a lengthy inscription on a stele established in 414 near the Kungnae-song capital: the Koguryo accused Yamato of attacking Paekche and Silla without provocation. However, the Yamato–Paekche alliance survived the wars and lasted into the 7c. More importantly, there was a tremendous influx of peoples into Yamato from Paekche and Kaya in the early 5c escaping the devastation of their homelands. An accounting in the 9c of elite clan composition in Japan reveals that

about 28% had continental roots.⁵¹ New crafts from the Peninsula such as stoneware (see Figure 14.5), gold-working, saddle-making, and the manufacture of horse-trappings revolutionized production of elite prestige goods in Yamato. Moreover, the arrival of persons learned in the Chinese language and writing system transformed the nature of Yamato Court rule.

Writing in Chinese had been introduced into both Koguryo and Paekche in the late 3c by Buddhist monks proselytizing with scriptures and small statues. Thus from the 4c, though Buddhism as a religion did not become prominent straightaway, the tools of recording and documentation were available. One of the most important aspects of the Paekche–Yamato alliance was the use of Paekche scribes in the late 5c Yamato Court. Many innovations involving writing were carried out, such as organizing production units (using the Paekche territorial designation of *bē*) according to product, and appointing managers to oversee the supply of those products to the court.⁵² These managers became the focus of the historic clans that supported the Yamato Court in the 6–7c.

New tombs and art

Corridor-chamber tombs

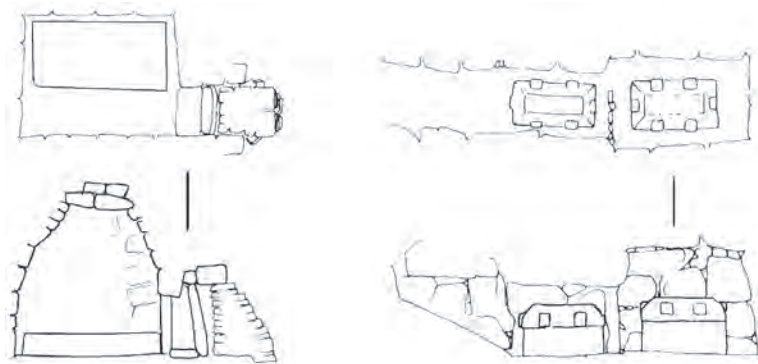
The corridor-chamber tomb developed in late Han on the Mainland, from cave tombs that were then lined with bricks (see Figure 12.9). It incorporated a passageway into the tomb that could be sealed but reopened. Its walls could be decorated by painting, sometimes after plastering. Mainland-style corridor-chamber tombs are known from the Lelang commandery region and were adopted by Koguryo and eventually by all other Pen/Insular states (Figure 14.13). Once adopted, this architectural structure transformed behaviors and beliefs relating to burial and the afterlife.

That the passage into the tomb could be sealed and reopened facilitated re-use for successive burials. In 7c Yamato, small round mounded tombs, each tomb containing multiple burials, clustered into cemeteries and became the norm among Yamato clansmen. The tomb was a dark space of unknown power; it is hypothesized that this space gave rise to the Japanese concept of *yomi*, the underworld after death.⁵³ To provide for the deceased in this new conception of the afterlife, stoneware vessels of the Kaya tradition, now manufactured in the Japanese Islands as Sué-ware, were filled with offerings and placed in the tomb.



Figure 14.13 Corridor-chamber tombs in East Asia. Line drawings show plans above and sections below for Silla (left) and Yamato (right) tombs.

Paekche corridor-tombs at Pangi-dong, Seoul (photos) and in Silla (lower left) have raised stone beds for holding the coffin. In Yamato, stone coffins shaped like houses came into use in the 5c (lower right). Tuff carved to make the coffins was imported from the central Inland Sea or western Japan Sea region into Yamato. Many elite families instructed stoneworkers in those regions. The hewing of stone blocks was a skill of Paekche immigrants.



Mural tombs

The use of large stones and the plastering of walls facilitated the painting of designs inside the chamber tomb. The grandest mural tombs are known from Koguryo, but only 96 of the more than 10,000 tombs attributed to Koguryo have murals.⁵⁴ Tombs with murals are constructed in the corridor-chamber style, adopted from Mainland traditions. As early as the WANG Mang interregnum, tombs were being built in the Han capital of Luoyang, which replicated architectural features of rooms in stone, including pillars, capitals, lintels, doors and windows.⁵⁵ The rooms were accessed by corridor entrances much like the brick tombs of similar layout (see Figure 12.9). One such tomb on the Korean Peninsula is Anak #3 Tomb near Pyongyang, the earliest to be painted inside with murals (Figure 14.14). Its four-roomed chamber was covered with a square mound; the stone walls were lacquered before being painted.⁵⁶ Some scholars believe it to be the burial of a Koguryo king,⁵⁷ but in fact, one mural inside is a portrait inscribed with the Chinese name of Dong Shou and a death date of 357; thus he must have been a Han émigré who still fulfilled a role in territorial governance in the old commandery region under Koguryo.

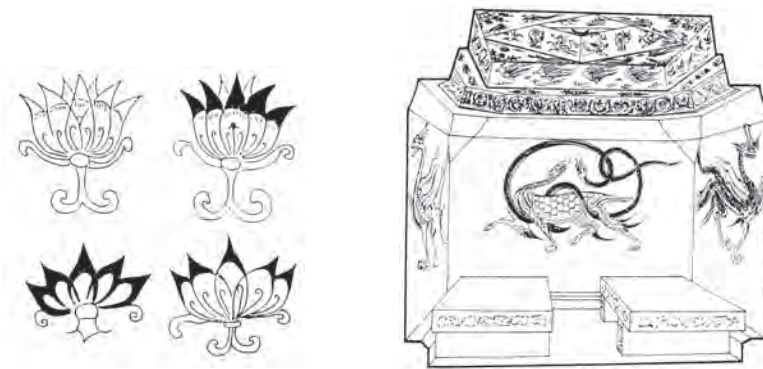


Figure 14.14 Koguryo tomb murals

Dong Shou (above left, d. 357) is shown under a beribboned canopy flanked by an attendant of smaller proportions to his right. A three-tiered hanging tassel is reminiscent of braided decorations used in Korea today.

In the genre painting (above right) of a royal hunt, note the use of the 'Parthian shot' – a bowman shooting backward over the flank of his horse. The tunic and baggy pants were horse-rider clothing adopted from the steppe.

Other painting conventions are the cloud structure above the deer and the rock below.

Earth-mounded corridor-chamber tombs became popular from the 5c. The few murals in them can be categorized into four groups: Chinese-style portraits (including of processions of bureaucrats), Koguryo genre paintings, Chinese Directional Deities, and Buddhist motifs. Formal portraits in the Han manner as well as Koguryo genre paintings were popular in the 5c. The genre murals portray activities such as royal hunts and dancers; much can be learned about dress and accoutrements from these paintings, in lieu of copious grave goods. Then in the 6c, Chinese astrological symbols such as the Directional Deities accompanied by flying heavenly maidens and honeysuckle vines replaced earlier images.⁵⁸ New Buddhist motifs show a different interest in the afterlife. A majority of mural tombs contain some Buddhist images, including heavenly fairies riding dragons and playing musical instruments, floral scrolls, and miscellaneous guardians and beasts.

In 1972, a mural tomb called Takamatsu-zuka, dating to the late 7c or early 8c, was discovered in the Asuka district (see Figure 15.8) of the Nara Basin. Decorated with the four Directional Deities and a procession of court ladies, it was originally attributed to Koguryo

In the 6c, the subject matter of the paintings shifted to the Directional Deities (lower right) and celestial and Buddhist motifs such as lotus flowers (lower left). The corbeled ceilings of the stone chambers facilitated depiction of directions of the heavens and Buddhist paradise.

influence. However, after decades of research, it was decided that the murals were more likely painted by artists from the Tang Dynasty where tombs of princesses bore similar murals of court ladies. The dress fashions were identical to Tang and illustrated the degree to which Yamato looked to Tang for its high culture, which transformed the nature of court society in the last century of the mounded tomb culture.

Expansion of Silla and Yamato

Silla and Yamato emerged from the periods of mounded tomb cultures to become the exclusive states in the Peninsula and Islands, respectively. Their expansionist policies were radically different in achieving control over their territories.

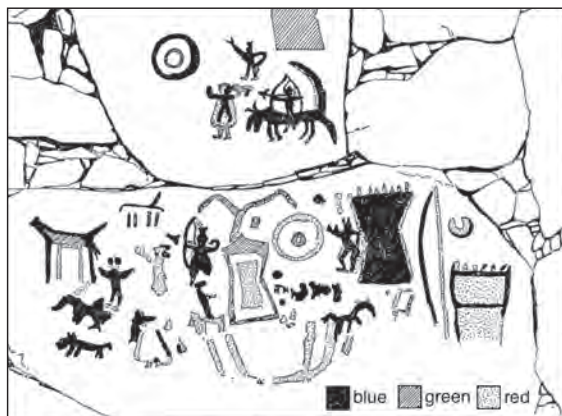
Administrative incorporation by Yamato

Whereas the Miwa polity was limited to the southeastern Nara Basin, the Yamato state, which developed in the 5c and was headed by the Kawachi Court, was grander but still limited to the Kinai region – particularly the plains areas of the modern prefectures of Nara, Osaka and Kyoto. In the 5c, under Yamato, the largest tombs in the history of the MTC were built on the Osaka Plains. Daisen^{vi} exceeded all others in size, at 486m long and 33m high, surrounded by three moats and three greenbelts. Thereafter tomb sizes decreased as the nature of the MTC changed yet again.

The central Court was balanced by strong chieftains in the Kanto, North Kyushu and San'in regions. Building on the mutual relationships developed among the regional chiefs participating in the mounded tomb culture, the Kawachi Court sought to integrate those chieftains into the Court hierarchy by giving titles to them. Inscribed swords were bestowed on chiefs in Kanto and North Kyushu,⁵⁹ while the legends of Izumo in the San'in region were incorporated into the developing historical traditions that were later recorded in the *Nihon Shoki*.⁶⁰

The Kanto region was a northeastern frontier, where the keyhole tomb tradition continued through the 6c and haniwa became an important visual representation of the ruler's realm. This area subsequently became the locus of horse-raising and eventually the

^{vi} Daisen and Horaisan Tombs are attributed to the Nintoku and Suinin sovereigns, respectively, but these attributions have been challenged so that archaeologists currently refer to them by these alternative tomb names rather than by the sovereigns' names.



source of the mounted samurai of the medieval period.⁶¹ North Kyushu also developed its own variant of the MTC (Figure 14.15), using stone statues instead of haniwa on the tombs. Several ornamented tombs in this area demonstrate the influence of Koguryo mural tombs, though the subject matter and conception were entirely local.



Figure 14.15 A regional variant of the MTC in Kyushu

In opposition to haniwa, a sculptural tradition in stone (left) arose briefly in North Kyushu, where warriors with quivers on their backs were the primary figures. In 527, the Iwai Rebellion, led by the eponymous chieftain in North Kyushu, was quickly suppressed by Yamato. Stone figures were erected on Iwai's tomb in commemoration. This single instance of military action stands in contrast to a relatively peaceful extension of Yamato power through-out the western archipelago

Also in Kyushu, the 6c ornamented tombs, with paintings on the large boulders used to build the corridor-chambers, illustrate the importance of the horse in addition to weapons and sea communication by boat. The horse-riders wear tunics and pantaloons typical of the steppe cultures in these murals at the Takahara-zuka (upper left) and the Goroyama Tomb (upper right).

Military conquest by Silla

Silla, having developed late and operating out of a tiny mountain basin in the southeastern Peninsula, nevertheless became the dominant Peninsular polity – albeit with a little help from its friends on the Mainland, the Tang Dynasty (618–907). Silla took over the coastal Pon-Kaya region in 532 and then conquered Tae-Kaya in the upper Nakdong River valley in 562. This brought Silla into direct contact with Paekche in the west, stimulating construction of many mountain fortresses along the shared boundary. Silla ultimately took over Paekche in 660. Koguryo then represented a formidable enemy to the north, and rather than attack it alone, Silla formed an alliance with the Tang Dynasty to conquer it from two directions, accomplished in 668. Koguryo elite withdrew into the Manchurian Basin, where they formed a new state called Parhae (C. Bohai).

Silla's alliance with Tang coincided with an increasing interest in Tang technology by Yamato. These two new expanded states were ripe for developing different methods of administrative technology,

urban organization, and elite expression. Along with the adoption of Buddhism, the Tang influences transformed the nature of state rule in the Pen/Insulae – the subject of Chapter 15.

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Chapter 15

East Asian Civilization

(3–7c AD)

Rapid transformations

On the Mainland

During the periods of mounded tomb cultures in the Pen/Insulae, the Mainland was undergoing rapid political and economic change. Multitudes of states vied for dominance during the Three Kingdoms Six Dynasties period (220–581 AD, including the “Sixteen States”).¹ The years 420 to 581 are also called the period of the Northern and Southern Dynasties because of the split between *huaxia* rule in the south and nomadic rule in the north. According to one estimate, 10 million steppe people moved into the northern heartland in the 4–6c.²

Brief unification was attained under the Sui Dynasty (581–618), with a subsequent florescence of culture in the first 150 years of the Tang Dynasty (618–906), often called “China’s Golden Age” due to the material richness and cultural diversity engendered by trade along the multiple Silk Roads (Figure 15.1). From the 4c, Sogdians had been the “principal merchants” for trade between Central Asia and the China Mainland, conducted through the Gansu Corridor.³ Their country of Sogdiana, stretching between the Amu and Syr Rivers,ⁱ included such famous trading towns as Samarkand and Bukhara. Sogdian connections to the west brought in Persian, Indian and even Mediterranean objects to be admired, copied and improved upon. In return, Chinese silk along with ceramics, jades, lacquerware, iron objects and bronzes were traded westward.

The new capital of Chang’an, built southeast of the old Han Chang’an (see Figure 12.1), served as the capital of both the Sui and Tang Dynasties, though several times for various reasons the Court shifted to the secondary capital of Luoyang, located on the Grand Canal built under the Sui Dynasty. These two capitals became international entrepôts – connecting to the Silk Roads through Central Asia. Merchants and monks from several Central Asian

ⁱ Stretching over parts of today’s Kyrgyzstan, Tajikistan and Uzbekistan.

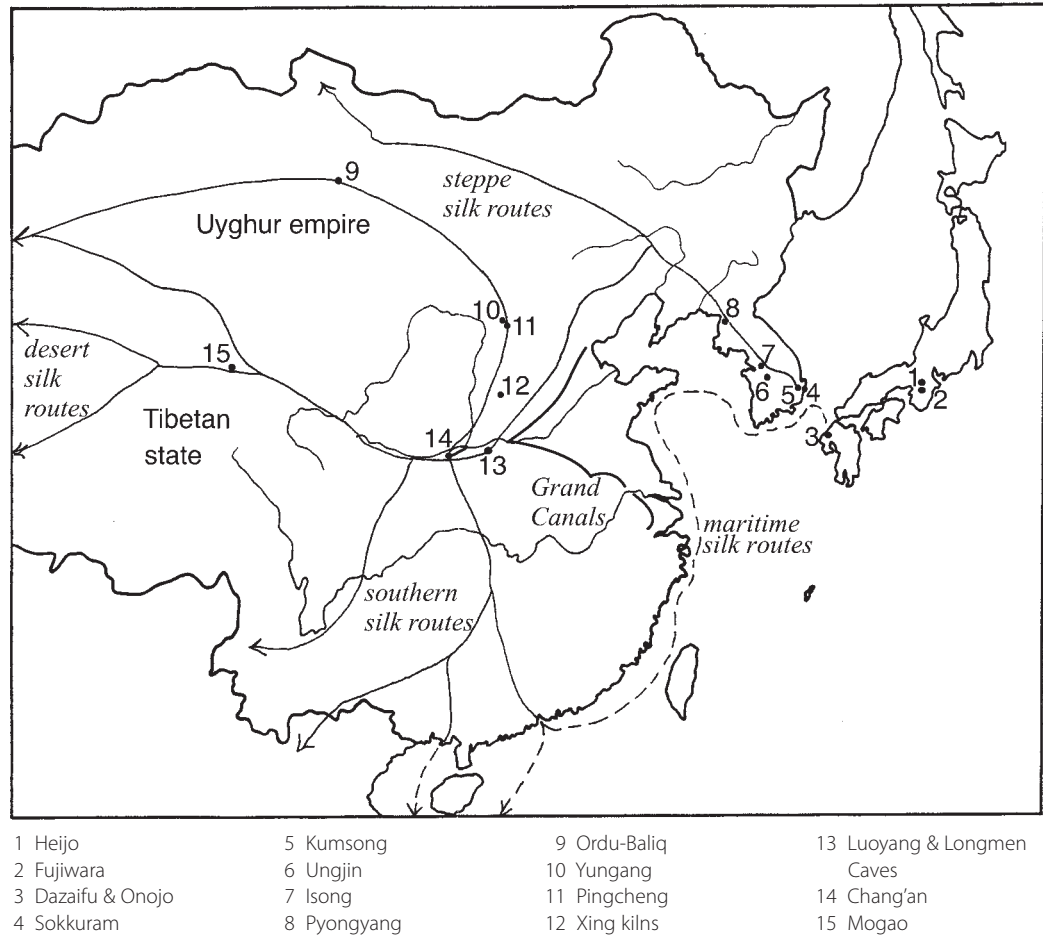
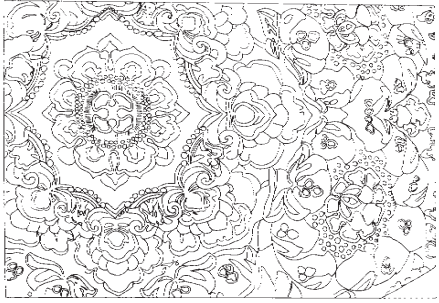


Figure 15.1 The Silk Roads and sites mentioned in the text



Many non-Chinese faces appear in art works of the time, such as this caravanner with a heavy beard depicted in three-color ware with his camel, designed as tomb figurines.



Silk, first transferred westward during the Han Dynasty, was by Tang times being exported from the west back to China along with new weaving techniques. Shown here is a weft-figured brocade of bold, large-patterned design, a newer type of silk weaving than warp-brocade.

countries brought with them not only new ideas and material goods but also entertainments. The capitals were home to several religions including Manicheism and Nestorianism. The imported tradition of Buddhism became dominant, co-existing with Confucianism as the major political philosophy and with Daoism as a “newly constructed intellectual system”.⁴ Unfortunately, imperial suppression of Buddhism in the mid-9c resulted in the destruction of 4600 temples and 40,000 shrines,⁵ but most of the losses were in the central regions rather than the northeast, which had escaped Tang control by then.⁶ Tang was the peak period of Buddhist adherence and influence in China: Buddhism never regained its hold on Chinese society after the persecutions.

Despite the prosperous Silk Road trade, the surrounding peoples were not always peacefully engaged with the Sui-Tang dynasties. Records of raids occurring between 599 and 755 identify the perpetrators as Turks, Jihu, Khitan, Qay, Tuyuhun, Tangut, etc.⁷ The Tang Court had to deal with the Uyghur empire to the north and the Tibetan state in the southwest. Thus, even at the height of East Asian civilization, the northern problem had not been solved. It impinged again on the Mainland in the 13c when Genghis Khan united the Mongolian tribes and his grandson Kublai Khan established the Yuan Dynasty of Mongol control over all of China. Again in the mid-17c, control shifted to the northeastern Manchu, as they established the Qing Dynasty (see Table 0.1b).

In the Pen/Insulae

All of these changes during the Sui-Tang periods affected the emerging Pen/Insular states. Koguryo reconstituted itself three times, after the defeats by Wei in 244 and the Murong in 341 (see Figure 14.2), and after the temporary defeat by Paekche in 371. After this last incident, King Sosurim of Koguryo adopted Buddhism and rewrote the state laws to incorporate Confucianism – including the establishment of a Confucian Academy. Similarly, after Koguryo forced Paekche out of the Han River basin, King Murong restructured the government and policies while strengthening diplomatic ties to the Liang Dynasty (502–587).⁸ On the Liang model, Paekche established Buddhism as its state religion and quickly passed it on to Yamato in the mid-6c. In 682, United Silla established a Confucian Academy along with additional reforms derived from Tang. In United Silla particularly, the Confucian concept of loyalty contributed to “a social ethos that would foster national unity”.⁹

Other innovations were also passed among the Pen/Insular polities. As early as the 2c, Koguryo had a territorial system based on the Han

directional system: four directions and the center, making five *bu* 部 divisions. This system was adopted into Paekche at its Hansong capital, but at its new Ungjin capital in the 5c, Paekche re-adopted the Chinese directional system with five *fang* units, relegating the *bu* units to wards in the capital. The latter unit was introduced into Yamato in the late 5c but was reassigned to occupational groups, now pronounced *bé*, that supplied the court with tribute goods.¹⁰ Silla, in contrast, divided its capital into six *pu* based on the traditional clan territories but still used the same Chinese character to represent them.

Titles and court ranks display a mixture of indigenous and foreign elements. For example, paramounts of all the states periodically applied to the Chinese courts for titles (see Chapter 14) and they all instituted internal ranking systems. Yamato devised the *uji-kabane* system with the development of the *bé*,¹¹ but this was replaced by a 12-rank and cap system on Chinese lines in the early 7c. In Silla, the Chinese title *wang* (king) replaced the indigenous *maripkan* title in the early 6c; the *kolpum* bone-rank system, however, was not borrowed from China though its formalization might have been inspired by Chinese ranking systems. Devised in the middle 7c, the *kolpum* system consisted primarily of the relative ranking within and between descent groups, while accommodating immigrants from China as well as Paekche and Koguryo nobles.¹² Descent group according to surname is still a powerful organizing factor in modern South Korean society.

Above are the intangibles of socio-political change – more complicated than mentioned here and the fodder of much historical research. Below, we will concentrate on the material correlates of several transformations: in religion, urban planning, territorial administration, land reallocation and taxation and even entertainment. Cumulatively, these tangible and intangible reforms provided the basis of a common East Asian civilization – many aspects of which have endured through the centuries despite several subsequent regime changes and cultural shifts.

Buddhism

Buddhism was the first major innovation to spread across East Asia, transforming the Six Dynasties and the mounded tomb cultures of the Pen/Insulae. Back in the Late Han period, the first Buddhist monks had brought the religion to Mainland China via the Silk Road in the company of Bactrian and Indian traders. The early task of monks living in newly established temples was to translate the Sanskrit

sutras into Chinese. Buddhism had been confined mainly to foreign merchant enclaves in the capital, although there are records of the establishment of Buddhist communities elsewhere and the building of Buddhist temples in palaces of certain emperors and princes. In the late 3c, however, Buddhism suddenly gained favor as a solace to the literati who struggled to survive in those times of extraordinary political turmoil, and rulers themselves adopted the religion. Belief in Buddhism was not exclusively personal: by becoming a patron, a king could promote himself as a *cakravartin*, a just and benevolent ruler whose reign was based on Buddhist law.

Rulers of the successive Jin dynasties (Western 265–316, Eastern 317–420) became patrons of Buddhism, and by the end of the 5c, the existence of almost 8500 temples and more than 100,000 monks and nuns across the land bore witness to a remarkable expansion of religious communities and devotees. During the 4–6c, monks carried religious proselytizing northward into the multitudes of small states, many established by northern ethnic groups such as the Xianbei Toba. Buddhism flourished in the north partly as an “alternative cultural policy” to the Confucian-based courts of the south; monks were often employed as ministers or advisors.¹³

Buddhist grottoes

Patronage of Buddhism by the Northern (Toba) Wei (386–534) is well known through the rock-cut Buddhist caves near their capitals, first the Yungang Caves near their Pingcheng capital and later at the Longmen Caves near Luoyang (Figure 15.2). Donors (indicated through their portraits and inscriptions) included individual members and family groups of the aristocracy and even groups of females – participating as equals with men in the new religion.¹⁴

Dunhuang is another famous site of spectacular Buddhist caves. Whereas Yungang and Longmen hold mainly rock sculptures, the Mogao caves at Dunhuang also contain frescoes and sculptures modeled with straw and clay. The Mogao caves also housed a library of sutras and other documents, many of which were brought back to the British Museum by Aurel Stein and are now the subject of intensive research.¹⁵

The old Dunhuang commandery area, located at a pivotal point on the Silk Road, became a focus for Buddhist hermitage and patronage in the 4c. Monks carved caves into the cliffs at Mogao, the earliest dedicated in 366.¹⁶ Today Mogao boasts 492 surviving caves identified in a 1.5km stretch of cliff dating to the 5–14c. Many have a rectangular floor plan with a central column, modeled after two types of Indian cave temple: one with an anteroom and/or a



Figure 15.2 Toba Wei Buddhist sculptures and monuments

Both Buddhas shown here exhibit the stiff drapery and straight postures of Wei sculpture with their right hands held in the 'fear not' gesture and the left hands in the 'wish-granting' gesture (mudras).

Buddhism was the living religion of the Northern (Toba) Wei; the Yungang grottoes were carved when their capital was in the north near Datong City and the Longmen grottoes carved near their later capital at Luoyang (right). These sites favored a type of shallow hemispherical niche, each containing a large central statue. Carving continued at Longmen in the early Tang Dynasty, resulting in a total of 97,300 statues.



Figure 15.3 Tang Buddhism: art and architecture

Legend has it that Buddhism was brought to Luoyang by two Indian monks on white horses. The White Horse Temple, founded in their honor in 68 AD, still exists near Luoyang, though rebuilt many times. Originally of wood, its pagoda (upper right) is now made of bricks, dating to 1172.

Pagodas nominally contained the 'relics' of the historic Buddha, initially pieces of his bones and teeth after cremation; when the supply of these ran out, other valuable items such as jewels and gold were placed in relic boxes, like this silver one (lower right) from Famen Temple in Baoji – an exquisite example of Tang Dynasty silver work, decorated with seated Buddha images. This was one of eight nested boxes, the last of which contained an alleged finger bone of the historical Buddha.

Besides Buddha images, bodhisattvas (left) are often depicted, as at the Mogao Caves near Dunhuang. They are noted for their jewelry, marking them as beings who did not enter nirvana upon gaining enlightenment but turned back to help others do so. Note the flowing garments and fluid body posture; these illustrate growing awareness and skill of the Tang artist compared to the earlier stiff figures of the Northern Wei Dynasty in Figure 15.2.

corridor leading into the main chamber, the other with numerous niches or small rooms branching off the main chamber. The caves initially served as places for meditation, but between the 4c and 8c they were decorated with astounding works of art for monetary donors wishing to increase their karma for their next existence.

Many of the room-like caves were plastered with clay and brightly painted with murals, which now cover more than 45,000m² of wall and ceiling space. The frescoes portray individual Buddhist deities (Figure 15.3) or scenes from Buddhist literature. More than 2000 Buddhist figures resided in niches or on pedestals in the caves; constructed with clay modeled over straw-covered wooden frames, they were then painted in brilliant colors. Some of these astonishing figures emerge from the wall in bas-relief and three-quarter life-size sculptures.

Pen/Insular Buddhism

Because Buddhist motifs appeared in Koguryo by the early 4c, the religion must have been known before the traditional date of 372 for the introduction of Buddhism, when the king of Former Qin (351–394) allegedly dispatched a monk with sutras, small Buddha statues and ritual implements to his Koguryo counterpart to help solidify a political alliance.¹⁷ By the early 5c, nine temples had been built around the Pyongyang area.¹⁸ Buddhism reached Paekche a few years after Koguryo, introduced in 384 by an Indian monk who had been resident in Eastern Jin (317–420); but the religion was not taken up until the early 6c, after solidification of ties with the Liang Dynasty (502–556) in the southern Mainland.

The situations in Silla and Yamato were not so receptive. Buddhism was known in Silla from the early 5c, but early proponents were martyred, possibly because of their Koguryo connections. In the early 6c the first Silla king to practice Buddhism ascended the throne, but the aristocracy strongly resisted this new religion. This pattern was repeated in Yamato. A Paekche king sent Buddhist statues and sutras to his counterpart in Yamato in 538 or 552,¹⁹ causing great friction and indeed warfare between those clans of Peninsular descent who wanted to accept the religion and the native ritualist clans who rejected it. But in both Silla and Yamato, Buddhism eventually came to be accepted by the court. In Japan many aristocrats built private temples in their clan territories, while in Silla, early temple-building was a state enterprise.

One of the most extraordinary Buddhist monuments is Sokkuram, built in 751 near the United Silla capital of Kumsong. Neither a temple in the ordinary sense nor a rock-cut cave, Sokkuram is built

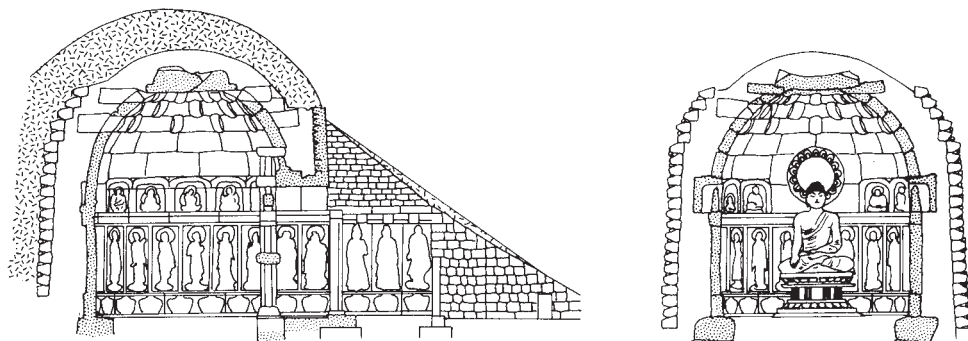


Figure 15.4 Sokkuram
Buddhist grotto of
United Silla

Built like a mounded
tomb to resemble a cave
temple, Sokkuram is an
entirely artificial construct.

like a corridor-chamber earth-mounded tomb but with its interior outfitted like a cave temple (Figure 15.4). Located on the highest point of Silla's eastern border, overlooking the Eastern (Japan) Sea, it was constructed as protection from marauding 'pirates' from the Japanese Islands.

Temple excavations

Temples in the Pen/Insulae were built on the principles of Tang Dynasty elite architecture, which was also employed for secular buildings (Figure 15.5). The earliest temples were constructed in Koguryo: four have been excavated near Pyongyang, each having two or three buildings surrounding an octagonal pagoda (Figure 15.6).²⁰ The pagoda is the most important building in a Buddhist temple, evolving from the Indian *stupa* that was designed to contain the remains of the historic Buddha (see BOX 12.1). This octagonal shape was soon superseded by square pagodas, all built of wood, but later constructed of brick or stone in China and Korea (see Figure 15.3). Japan retains the wooden structure today in a case of marginal survival. Asuka-dera, the first temple erected in Japan in 588, followed the Koguryo layout of buildings surrounding a central pagoda, though not copying the octagonal shape (Figure 15.6). In the mid-7c, an axial arrangement of buildings was adopted, as excavated at Kawahara-dera, and the two temple layouts existed together in Asuka.²¹

A major transformation in state material culture took place as temple building superseded mounded tomb building in all of the Pen/Insular states. This shifted the ritual focus of society, even though mounded tombs continued to be used for imperial burials (as today when the Showa Emperor was buried in 1989). Construction of temples and other elite architecture absorbed many resources; one

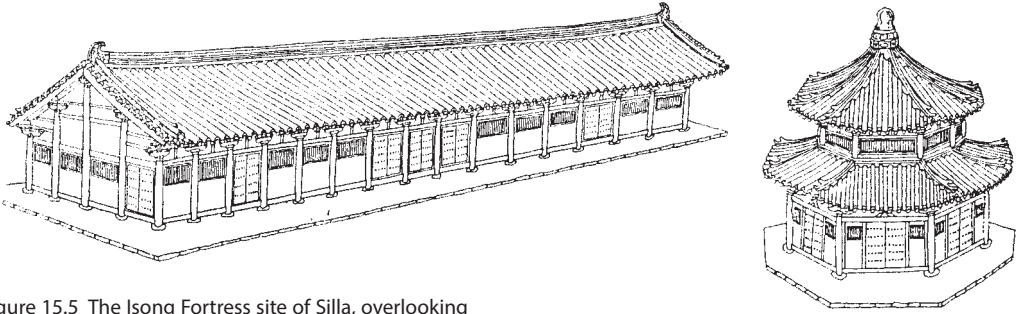


Figure 15.5 The Isong Fortress site of Silla, overlooking the Han River basin

Tang elite architecture was used for both administrative and temple buildings. Key elements of this new architecture are ceramic roof tiles, load-bearing pillars, wattle-and-daub wall construction, with foundation platforms and/or foundation stones for pillars. At Isong, such buildings constitute not a temple but a military fort high on a hilltop overlooking the Han River basin. Buildings reconstructed at Isong from these principles (above line drawings) and foundation stone placement (right) include a hexagonal pavilion, following the original Koguryo pagoda structure. A 37m-long building with several bays ostensibly served as an administrative center.

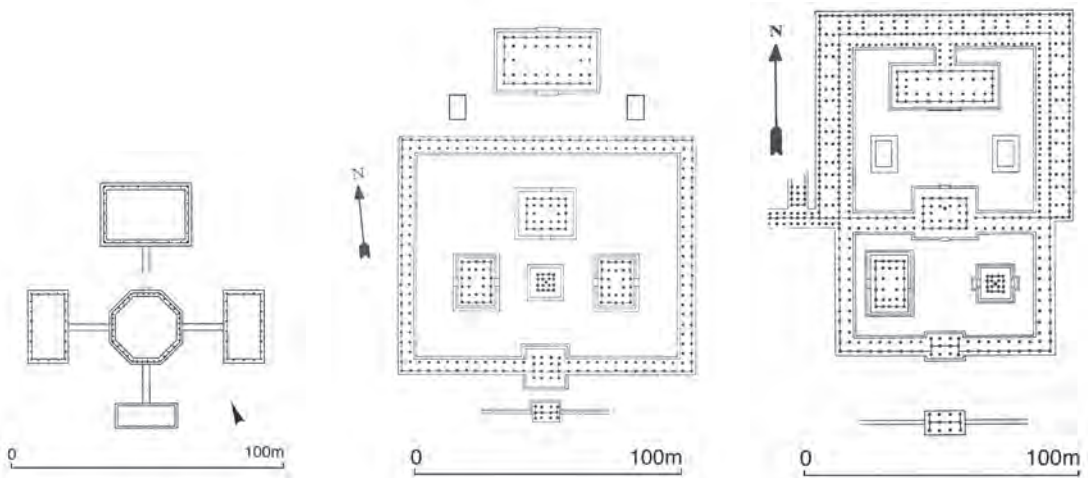


Figure 15.6 Early temples in Pyongyang and Asuka

Asuka-dera (center) followed the early Koguryo temple layout known at Chon'gam-ri near Pyongyang (left) except for the change in shape of the central pagoda from octagonal to square.

All of these temples were built with a southern main gate, doubled in Asuka. Note that the earlier temples on the left are not oriented to true north, whereas the later Kawahara-dera (right) is. Kawahara-dera, built in Asuka in the late 7c on an axial plan, has one pagoda in the southern compound but set to the right. The corridors were elaborated to incorporate rooms around the northern compound. The main worship halls stood in the southern compounds, while the lecture hall was accompanied by a bell tower and sutra store. The latter buildings were incorporated into the corridor system at Kawahara-dera but stood outside the Asuka-dera compound to the north.

unintended consequence was deforestation around capital areas, documented particularly for the Nara and Heian periods in Japan.²² The huge pillars and bracketing systems necessary to support roofs covered with heavy ceramic tiles took their toll on nearby forest resources, and large tree trunks had to be imported to the capital from farther and farther away. Fuel for firing the roof tiles added to this environmental burden.

Law and administration: a Yamato case study

Following the unification of the Mainland by the Sui Dynasty in 589, Koguryo did not send the proper tribute to the court, resulting in several attacks by Sui troops between 598 and 614. These military excursions drained the Sui treasury to the extent that the dynasty collapsed. The Tang successors were again drawn into Peninsular affairs when Silla asked for Tang's help in defeating Koguryo, achieved in 668. The Yamato Court was extremely alarmed by these expansionist activities and feared an invasion from the continent. In the 7c, therefore, they followed their now extinguished allies, the Paekche, in beginning to build mountain fortifications in North Kyushu and the Inland Sea region. The rock walls, such as at the Onojo site overlooking the Korea Strait, are remnants of these fears that after all came to naught. Nonetheless, Yamato rulers realized they must transform Yamato rule to be as strong as Tang and United Silla, leading to what is called the Century of Reform between 589 and 710.²³

The first of these reforms was the adoption of Confucianism as the Yamato Court political philosophy. The Confucian Classics and teachings had already been passed to Yamato by Paekche in the early 6c,²⁴ but a 17-article 'constitution' that combined Buddhist precepts, Confucian philosophies and *kami* worshipⁱⁱ was presented in 604 by Prince Shotoku, regent between 574 and 622. Referred to as "Japan's earliest scholar-statesman and the most important patron of Buddhism of his day",²⁵ Shotoku incorporated Confucian principles regulating relations between sovereign and subject and established guidelines for good rulership, proper conduct, and harmony in the cosmos.

Shotoku's *Seventeen Injunctions* were followed by the Taika Reforms, promulgated in 645, designating the sovereign as "the chief patron of Buddhism and continuing as the high priest of *kami* worship".²⁶ This laid the foundation for the establishment a

ⁱⁱ *Kami* can be defined as "unseen deities that reside in awesome things located in particular places" (Brown 1993: 2, fn 3). They form the basis of the Shinto religion as known later in history.

century later of a dual political and religious hierarchy. Subsequent proclamations called for the direct control of the land and population by the sovereign, achieved through land surveys and censuses, and promoted means to displace the influence of the old Yamato clans with central appointments as in the Sui-Tang systems.²⁷

New laws for the Tang Dynasty had been written on the Han model and revised several times, remaining in operation until the 14c in China and becoming the basis for early historic law in Korea, Japan and Vietnam.²⁸ In Japan, this was called the Ritsuryo system, deriving from the Tang penal code (律 C. *lǜ*, J. *ritsu*) and Tang administrative law (令 C. *ling*, J. *ryō*). Instituted in the late 7c, the Ritsuryo system directed the workings of government from late Kofun through the Nara period into the early Heian period, when it finally broke down in the face of the rise of early samurai culture.²⁹

By the end of the 7c, a new name for the country, employing the characters today read Nihon or Nippon (日本), superseded both Wa and Yamato (though the latter is still in poetic use). At the same time, the title of Tenno (天皇 'heavenly sovereign') based on Chinese examples superseded the native word for 'king'.³⁰ From this time onward, we can talk about Japan, the Japanese, and the Emperor without being anachronistic (just as the Qin Dynasty unification of the Mainland in 221 BC allows the use of 'China' thereafter). These two changes at the Yamato Court mark the emergence of the Japanese state as an equal to Tang in diplomatic circles.

Furthermore, the voluntary and fairly systematic overhauling of the Yamato state system in the face of military threat in the 7c can be compared with the situation in the mid-19c as Japan was forced to open itself to the West. Examining how such changes were instituted provides important case studies for state formation despite the rarity of similar instances worldwide.

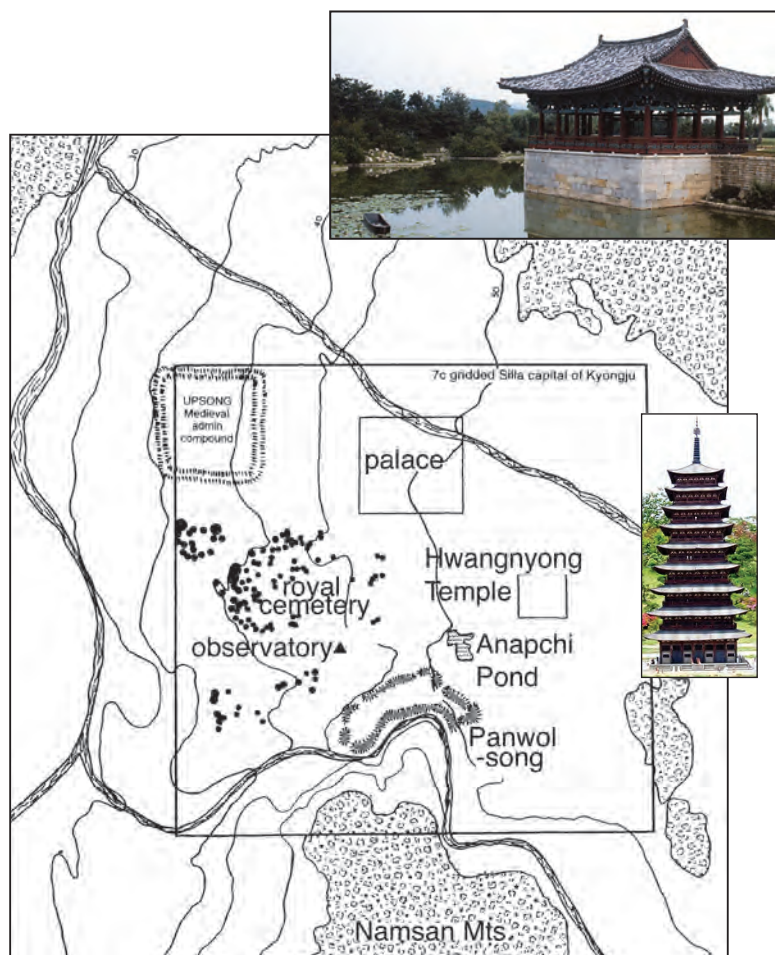
Territorial control

Gridded cities

The gridded city in East Asia has a deep history going back to the conquest of Central Asia by Alexander the Great in the late 4c BC;³¹ many of the newly founded cities even in Central Asia (not to mention Egypt) were named Alexandria. The first gridded city on the China Mainland was the Northern (Toba) Wei capital of Luoyang after the Toba reconstructed it in 494.³² The Sui capital at Chang'an employed this pattern, and the same site was utilized by the Tang as their primary capital. Tang Chang'an covered 84km² with the inner city palace area alone occupying 9km².³³ The city grid was formed

Figure 15.7 Kumsong capital of Silla.

The capital was first limited to Panwol-song fortress at river's edge and the royal cemetery; it then expanded to a gridded city that encompassed a palace, the Hwangnyong Temple complete with Anapchi Pond (with reconstructed pavilion, upper right) and a nine-story wooden pagoda (lower right model) – the latter built under the direction of a Paekche architect.



by 11 north–south avenues and 14 east–west avenues, making 130 wards.³⁴ The palace was located at the north on the central axis, with markets symmetrically positioned in the western and eastern halves. In the 7c, Silla made attempts to model Kumsong on the Tang pattern and Yamato established a gridded capital at Fujiwara, though with problems arising: at Kumsong, the northeastern corner of the grid lay in marshes, while at Fujiwara the Asuka River valley where it was situated was too confining.

Excavations at Kumsong revealed several huge stone-footed building layouts, a garden pond named Anapchi, and numerous pavilions associated with the royal palace (Figure 15.7). However, “there is little conclusive archaeological evidence that the Silla capital was a planned city” with gridded avenues.³⁵ Nevertheless, the capital was no longer confined to the walled Panwol-song and the whole alluvial fan was claimed for the urban site. Objects excavated from

Anapchi, being a waterlogged site, yielded many organic objects in addition to ceramics and metals, providing a vivid picture of life in the palace with wooden dice, Buddhist images, gilt-bronze scissors, stoneware pottery, roof tiles and more.

In Yamato, nine of the latest palaces of Yamato paramounts prior to the construction of the Fujiwara capital were located in the small confines of the Asuka valley in the southern Nara Basin. Excavations at five of these sites reveal that they were built in the indigenous architectural style with unfooted embedded pillars and thatched or shingled roofs. However, a new architectural use of stone is seen at these sites: paved plumbing facilities included stone-lined ditches,

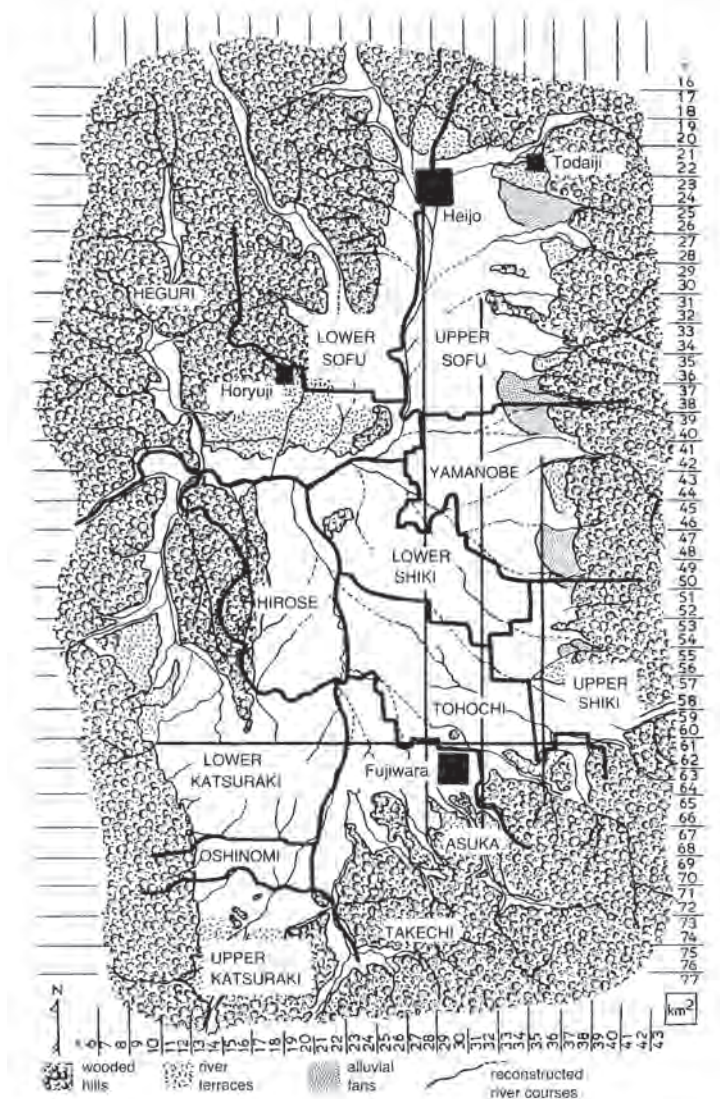


Figure 15.8 Ritsuryo-period Nara Basin, showing the Fujiwara and Heijo palace sites

A new road system connected these sites and led out of the basin. Important temples were Horyuji and Todaiji. The basin is divided into early counties following the distribution of Yamato clan territories. When the capital was moved from Fujiwara to Heijo, many buildings were disassembled, transported north and rebuilt. Asuka-style roof tiles (below) found at Heijo are evidence of this economy of materials. New styles of roof tile (above) were eventually fired at Heijo, leading to multitudes of design types being excavated from the Heijo capital.



eave catchments, and well surrounds. These features were probably borrowed from the architecture of temples, which were being built in Asuka at that time by Paekche artisans.

The Fujiwara capital, completed in 694 (Figure 15.8), was carefully positioned according to Chinese geomantic principles between three landmark peaks, limiting the space available. The palace of 1km² containing numerous ministerial offices, ceremonial halls and the imperial residence was fully accommodated in this area, but there was not enough room for the capital city. Thus after only 16 years Fujiwara yielded to a new capital built in the northern Nara Basin in 710; many of the Fujiwara buildings were dismantled and their pillars and roof tiles taken north to reconstruct them at the new capital, named Heijo but often called Nara. Heijo served as the capital from 710 to 784 before the capital was moved to the Kyoto Basin for the last ten years of the Nara period (710–794).

Provincial systems

Chang'an was capital to the nested prefecture (州 *zhou*) and district (縣 *xian*) system of territorial administration which was regularized after 630.³⁶ The prefectures were grouped into 15 'circuits' (道 *dao*) connected by trunk roads. After a major rebellion in 756–763, 43 military commanderies were instituted in various regions.³⁷ This system was variably reproduced in the Pen/Insular polities.

In 7c Yamato, the regional leaders had been incorporated into the court and their areas of jurisdiction formalized as provinces (*kuni*, using the old *guo* character 國); counties and villages thus gave the province three levels of governance, increased to four levels in 715 with the intermediate addition of a township. With new provincial capitals built in the 8c, local magnates were displaced by appointee governors from the center in an attempt to counter local power bases. There were five home counties (called the Kinai); farther afield, the capital of Heijo was linked to the other newly established provincial capitals by trunk roads, following the Tang pattern of 'circuits'. The trunk roads (道 *do*) remained the main arteries through the Japanese Islands (with railways following them, too) until motorway construction in the 1970s. The names bequeathed to the different regions – especially Hokuriku, Tokai, San'in and San'yo – are still used as geographical locators today, though they have no administrative function (Figure 15.9). In 742, the emperor decreed that each provincial capital should have a Buddhist monastery and a nunnery attached to it; these were controlled by the Todaiji temple built east of the Heijo palace. Thus the Nara state had dual hierarchies of political and religious control throughout the realm.

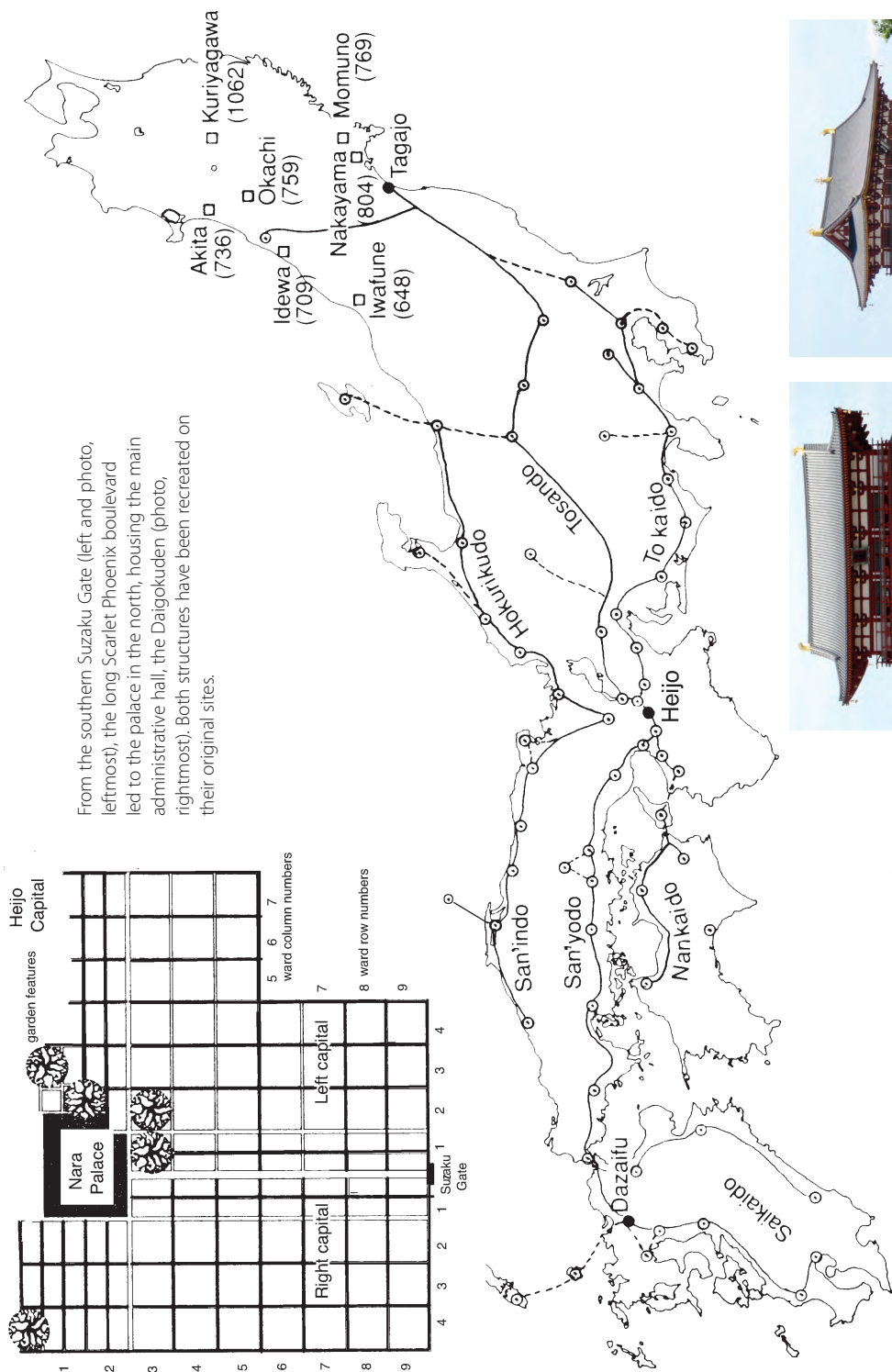
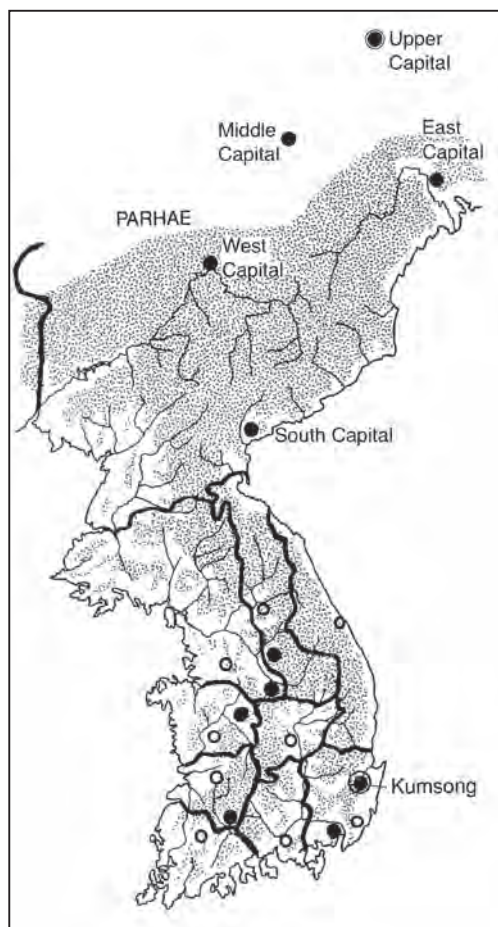


Figure 15.9 The Nara capital of Heijō and the trunk road system passing through provincial capitals



Figure 15.10 United Silla and Parhae at their zeniths

Among Parhae's regional capitals, the Upper Capital was foremost. Silla's nine provinces each had a provincial capital (open circles). The main capital at Kumsong also oversaw another five regional capitals (lower filled circles). Note that the United Silla/Parhae border ran south of the Taedong River, almost mirroring the division between north and south today.



Administration of the Nara state gradually faded into the Tohoku frontier. The Nara courtiers referred to those people in the north residing outside their jurisdiction as *emishi* – an administrative term rather than an ethnonym. The northerners continued hunting, gathering, and cultivating rice and millet in line with their Yayoi and Kofun predecessors. The Nara Court extended the northern frontier by building fortresses, beginning in the 640s, with Tagajo the main outpost (see Figure 15.9). Excavations at Tagajo demonstrate that it followed the urban plan of a rectangular fortification 800 × 1000m containing a foundation platform, with foundation stones for pillars of an administrative building, roof tiles, and a temple.³⁸ The *emishi* (later called Ezo) were gradually absorbed in to the administrative systems of the Nara and the succeeding Heian Court (794–1182).

In the west, a facility called Dazaifu opened in 663 in the old continental gateway area of North Kyushu. Its function was to regulate contact and welcome envoys from the continent, but it also served as a reminder of the quelling of the Iwai rebellion by a local chieftain by Yamato forces in 527.

One realizes from this geography that although the Japanese state existed at least from the 5c, it could initially claim only the Kinai area and only incrementally added to itself over long expanses of time in what might be called Japan's 'manifest destiny' to control the whole archipelago. Okinawa was an independent kingdom until the 17c, and Hokkaido was not integrated until the 19c.

Meanwhile, on the Peninsula, United Silla had a clear boundary separating it from the Parhae state, established by the vanquished Koguryo after defeat by Silla in 668 (Figure 15.10). Below the Taedong River, United Silla established nine provinces with new provincial capitals plus another five regional capitals from which to exercise control over these provinces. The number nine derives from the legendary nine prefectures (州) mentioned in the problematic Late Zhou text, the *Shangshu*, rather than Tang,³⁹ but Chinese influence is there nonetheless. The Upper Capital of Parhae, located in the far north, was joined by four regional capitals farther south (Figure 15.10).

A new field system

Another administrative act that had clear material effects on the landscape was the land allocation system. In China, the 'equal field' system was devised by the Northern Wei Dynasty and inherited by Sui-Tang, but it collapsed after the mid-8c rebellion.⁴⁰ In Japan, the grid system that has become known as the *jori* system from the combination of rows (*jō*) and columns (*ri*) was applied not only to the urban capital but also to agricultural land (Figure 15.11). Of course, establishing this grid involved massive land surveys and

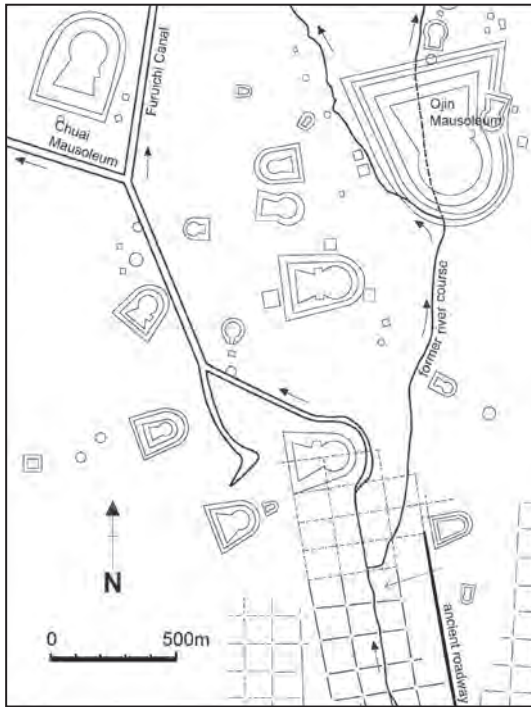


Figure 15.11 The *jori* system of land allocation under the Ritsuryō system

This 'checkerboard' field system defined the landscape for wet-rice agriculture throughout subsequent history until the 1970s when field sizes began to be increased for machinery access. It also affects archaeology in Japan, as the pre-*jori* landscape was essentially sealed underneath this new field system and is not accessible from the surface in terms of site locations and artifact scatters.

The *jori* system was instituted in two stages, oriented in different directions (as discovered in Osaka, left). Early field orientation is to the northwest and in this case follows an old road (bold) on its eastern side. On each side of this old orientation are newer fields oriented directly north-south. The natural river courses (single lines) had been later canalized (double lines) to avoid the earlier Kofun-period tombs.

The basic unit was a *tsubo* (below left, hatched), which had an address according to the row (*jō*) and column (*ri*) numbers. A *tsubo* measured approximately 1ha and could be divided into *tan* (center and right, stippled). The *tan* was the unit allocated to adults – that is, everyone six years old and up. Males received 2 *tan*, females only 1.33 *tan*. This was the amount of land deemed sufficient to grow enough rice for a year's supply per individual.

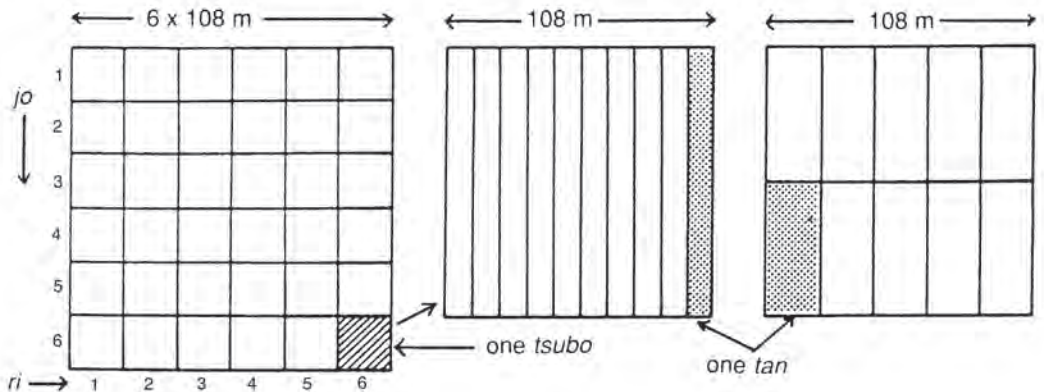


Figure 15.12 Writing table and equipment at Heijo

The Sué-ware inkstand and water bottle (upper left) facilitated the grinding of ink. Brushes were used for writing and were carried in a wooden case (upper right). An iron-bladed knife used to shave off the tablet surface lies across a modern tablet with shavings below it. In the upper center are two wooden seals, one ancient and one a modern reconstruction – the ultimate administrative artifacts. The wooden tablets were wet-preserved in wells and ditches where they had been discarded. Transport tags, love letters, promotion evaluations, work schedules and practice calligraphy have all been recovered.



reconstruction of paddy fields in accordance with the grid orientation – activities carried out over several decades. The field division into *tan* units provided the basis for allocation to individual adults – the tracking of which required not only an initial census but also adjustments for births, deaths and field abandonment.

Several accommodations were made in applying the Sui-Tang equal field system to Japan – for example, females were not allocated land during Tang times but in Japan they were.⁴¹ One anomaly in the system carried over from China allowed nobility, aristocrats, administrators and religious organizations to amass land to the detriment of the system.⁴² Land abandoned by peasants under force, disease, or tax burdens led to its confiscation by large manors (in China) or absorption of the labor (in Japan) by tax-free entities such as temples, thus depriving the central government in both cases of revenue. In Japan, the smallpox epidemic of the mid-8c caused a reduction in population hence taxes; to counter land abandonment, the Ritsuryo law was changed to allow private landholding in perpetuity,⁴³ one of the factors leading to the collapse of the Ritsuryo system and the rise of the manorial *shoen* system of the late Heian and Medieval periods (see Table 0.1b).

Taxation

Three kinds of taxes were levied on the populace: grain, goods, and labor. In the Sui-Tang system, grain taxes were due according to field allocation, but this did not hold in Yamato.⁴⁴ Further differences are noted:⁴⁵ all grain taxes were shipped to the Tang capital, whereas most grain tax in Japan was held in provincial storehouses for emergencies (Figure 15.13). Goods tax was mainly paid in cloth in China, but in Japan, the traditional tribute submissions of local products under the

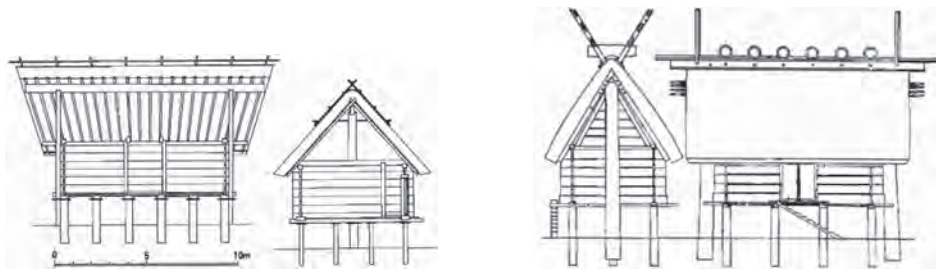
bé system were converted into taxes. It has been argued that the ‘adoption’ of the Tang tax system was merely a relabeling of practices already carried out by the Yamato Court.⁴⁶ In sum, rice was brought in mainly from the home counties (Kinai), but fish, salt, iron, shellfish, seaweed, etc., were brought in from the Inland Sea region, San’yo, and Tokai along the established trunk roads. We know of these goods because of the multitude of

wooden tablets, including transport tags, recovered from excavations at hundreds of sites throughout the archipelago but mostly from Nara (Figure 15.12).⁴⁷ Similar wooden tablets have been recovered from Anapchi Pond at Silla's Kumsong capital (see Figure 15.7) and the Dunhuang sites – where respectively either waterlogged or arid conditions prevailed.

It is interesting that in the Ritsuryo system, the provincial governor was not the one responsible for collecting taxes – it was the county administrator, often a local magnate. This must have been a corollary of central appointments of governorship in attempts to prevent them from building up local power bases. County seats were newly built on the grid model and supplied with an administrative center and storehouses in which to collect the tax goods (Figure 15.13).



A model of an excavated county seat (above) demonstrates the traditional post-hole archaeology of Japan, as no buildings in this provincial outpost had foundation platforms or stones but pillars were embedded directly in the ground. At least one storehouse (arrow) had subfloor pillars to support its heavy load, as known from the Fujiwara capital (left two, below).



The granary, developed from Yayoi times, served as the model for the first Shinto shrines, constructed from the 5c in competition with Buddhist temple-building. The structure of shrine buildings at the Grand Ise Shrine (right two, above) generally follows that of the granary cum storehouse with the addition of large end pillars to support the cedar shingle roof and extra decorations at the ends and along the ridgepole. Note that the door of the shrine building is in the long side, whereas the granary was entered from the short side, both by ladders since the floors were raised off the ground to protect the contents.

Figure 15.13 Tax storage facilities

County heads were responsible for collecting taxes and sending them to the Heijo capital. Storehouses in the new county seats also held grain in buildings resembling Yayoi granaries. These raised buildings with board walls evolved into the early shrine in the 5c in the archipelago, now seen in the Grand Ise Shrine.

Technological developments

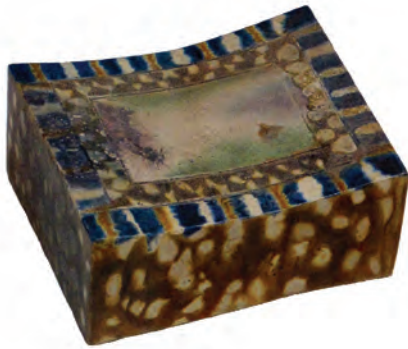
With enormous numbers of new objects and ideas flowing in from different regions, it is not surprising to see significant changes in East Asian material culture. The additions of Buddhist architecture and sculpture have already been mentioned above, but major developments also occurred in metalwork, ceramics, and other materials (Figure 15.14).

Silver was known and used from Zhou times in inlay (see Figure 10.8), but in Tang it became extremely popular as a medium for making new vessel shapes, particularly boxes (see Figure 15.3) and serving dishes having lobate edges. Silver repoussé and chasing technologies were initially imported from the west, but the Tang period saw a shift away from relief ornamentation produced by repoussé to linear chased design.⁴⁸

Another emergent technology was mother-of-pearl (nacre) inlay. Known from Shang and Zhou times, it achieved perfection in the Tang.⁴⁹ Metals, lacquerware and wood were all inlaid – not only with mother-of-pearl but also with amber (see Figure 15.14, mirror, lower left). *Turbo* shells that provided nacre to Tang craftspeople were supplied from Okinawa through a trade network that involved Dazaifu in North Kyushu.⁵⁰

Ceramics generally experienced a novel development of glazes, though Silla ware moved only from combed design to stamped design stoneware (Figure 15.14, lower right). Low-fired lead-glazed wares with a light green (from copper) or brown (from iron) sheen were deposited in Han tombs (see Figure 12.6). During the Six Dynasties period (220–589), northern kaolinic clays were rediscovered (first used for Longshan and Shang whitewares, see BOX 9.1) but decorated with oxidized lime glazes or lead glazes.⁵¹ It was the latter that gave rise to three-color ware in the Tang. These low-fired burial wares, often made in molds, had three lead glazes applied, one containing copper (turning green), one containing iron (turning yellow-brown) and one colorless glaze that allows the cream-colored ceramic body to show through. Together, these colors – green, brown and cream – came to define three-color wares (*C. sancai*, *J. sansai*). With a blue color produced by the addition of cobalt, some wares actually bore four colors. Finely molded tomb figurines of humans and animals (as seen in Figure 15.1), vessels, and even ceramic pillows bore these sumptuous lead-glazes (Figure 15.14, upper left). Green-glazed roof tiles for palaces first appeared in the Northern Wei Pingcheng capital,⁵² were used by the Sui and Tang, and were even found on the East Precinct buildings of the Heijō Palace in Nara.⁵³

Even more than three-color ware, the real achievement in Tang



was the production of porcelain, called so by Marco Polo because the color reminded him of a cowrie shell named *porcelino* “because it looked like a little pig”.⁵⁴ How then to define porcelain? Even the experts lack a clear answer, but the earliest porcelain manufacture is assigned to Northern Qi (550–577).⁵⁵ It began by using porcelaneous stoneware clay covered with a white slip and a clear glaze (Figure 15.14 upper right).⁵⁶ At least 28 kilns northwest of Anyang produced this new ware, Xing porcelain, from Northern Wei through Tang; Xing ware was succeeded by white Ding ware in the Song Dynasty (960–1279). The porcelain industry in the southern Mainland – what we usually think of as Jingdezhen porcelain – did not develop until the early 10c.

Yet another ceramic emerged in the 6c and became a great Tang export: celadon (now often just called greenware). Like porcelain, the name is also Western, said to derive from the gray-green color of clothing worn by the shepherd Céledon in a 17c French romantic play.⁵⁷ As such, the ceramics that belong to this category

Figure 15.14 Technical advances in 7–8c East Asia

See text for descriptions.

are negotiable, but they can generally be defined as gray-bodied stoneware bearing iron glazes that range from olive to light green to yellow-brown. First developed in the north and fired in kilns northeast of Chang'an during Tang, production was taken up with gusto in the 11c in the hinterlands west of ports of trade on the southeastern and southern Mainland coasts.⁵⁸

Trade ceramics are an important part of historic archaeology in East Asia: interaction between different countries can be tracked by the pottery produced and exported.⁵⁹

Cosmopolitan lifestyles

The East Asian capitals of the 6–8c were centers of high culture: poetry and literature flourished, and a variety of entertainment was to be had. Our best examples come from the Heijo capital and the 7c Imperial Storehouse, the Shosoin, located on the grounds of the Todaiji Temple – still there today (Figure 15.15). The Shosoin collection consists of the treasures of Emperor Shomu (now held in a new environmentally controlled concrete building). Shomu (r. 724–749), who ordered the construction of Buddhist establishments in the provinces with one becoming the later known Todaiji, also had

Figure 15.15 Tang fashions and various entertainments at Heijo

The Shosoin storehouse (top) held more than 9000 items including the 8-lobed mirror of Figure 15.14. Re-created at the Heijo site museum are other Nara-period luxuries: Persian carpets, board games including *go* – still popular today – and an early zither. Tang dress was fashionable at the court as was an imported game resembling croquet.



the Great Buddha cast, melting down all the bronze mirrors of the court ladies. He received many diplomatic gifts from Tang, some of which had made their way across Eurasia on the Silk Road to the end of the Earth at Heijo.

When Shomu passed away in 756, his widow donated his collection to Todaiji for curation in one of their storehouses, later known as the Shosoin. Every autumn, the Nara National Museum exhibits a selection of goods from the Shosoin collection; viewing them is one way to experience for oneself the glories of the 'Golden Age' of East Asian Civilization.

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Chapter 16

Epilogue: Ancient East Asia in the Modern World

Why study East Asian archaeology?

Some people wonder what the purpose is of studying ancient, dead civilizations. My answer is that they are not dead but manifest themselves in interesting, sometimes predictable, or often surprising ways in the world today. To ignore them is to miss or misunderstand a large part of the behavior, attitudes and practices of the current inhabitants of those ancient countries – some of which go back centuries if not millennia. In this Epilogue, I wish to draw attention to some of the ways ancient societies are still exerting clear and sometimes very important influence on the present socio-political milieu.

Meanwhile it is important to note that history can be either used or abused by modern entities, and I wish to quote these wise words:¹

A historian is a poor guide to suggesting policy options, let alone predicting the future. But history can help in two ways: first, by pointing to analogous situations in the past and indicating how things worked or did not work out, and second, by suggesting in what ways the current situation is different from the past so as to caution against too facile generalizations about the challenges of the contemporary world.

The rise of civilization in East Asia was completed in the 8c, with shared administrative organization, urban planning, Buddhist religion, and Confucian political philosophy in place in all three East Asian states: Tang, United Silla, and Nara. These were all tertiary states, deriving much of their heritage from the several states that came before them. In their own ways, however, they were individually unique, and it is certainly the case that the Pen/Insular forerunners, Silla and Yamato, were not derivative of the Mainland states despite having a useful familiarity with those highly organized political systems. Those earlier states matured at a time when Mainland influence in the region was on the wane and the major foe was Koguryo. Silla and Yamato developed in areas farthest from the Chinese courts, within a context of peer polity interaction;²

their internal organizations mirrored each other but varied in the details. These facts suggest that the hierarchical systems of these early states represent local solutions with their own creative (rather than externally imposed) choice of rulership components.

The choices of the Silla and Yamato rulers to borrow from Tang China were voluntary, though indeed a fear of Tang conquest of Silla (after Tang's help in eradicating Koguryo) and a fear of Silla conquest of Yamato (by continuing unification warfare) fueled these choices. While United Silla imposed its systems on conquered territories, Yamato's courtiers managed to carry out reforms without a preceding military conquest. These different ways of instituting change are instructive lessons for us today.

Of course, many things have changed in the intervening centuries, but the above aspects of East Asian civilization live on. Thus, knowledge of the formation of and historic participation in the various realms of that civilization help us understand what is happening today among the five relevant states: China, Taiwan, the two Koreas and Japan.

Sharing of religious philosophies

The Tang Dynasty is often called the “classical period of Buddhism in China”; many schools of Buddhist thought and practice flourished, though only two remain influential in China today: Pure Land and Chan (Zen).³ Several new religions or ‘quasi-religions’ have emerged in China – most notably Falun Gong, created in 1992;⁴ it is based on the Buddhist Wheel of the Law (C. *falun*; *dharmachakra* in Sanskrit) but incorporates many other tenets and philosophies.

Several traditional schools of Buddhism survived in Japan, and new ones were devised. One interesting example is Nichiren Shoshu: arising in the 13c, as recently as 1930 it spawned a lay group, the Soka Gakkai, which subsequently became independent and formed its own political party, Komeito – the third largest political party in Japan. Obviously, Buddhist philosophy is a powerful force today in Japan and remains so on a personal level as well. Serious believers or not, families maintain their household registers at Buddhist temples, and most ceremonies surrounding death, burial and memorials are carried out by Buddhist priests.

Buddhism in the Koreas is a minor but still important presence. In the North, Buddhists are described as “the most active and powerful” among religious groups.⁵ In South Korea, according to the 2005 census (to be retaken in 2015), about 23% of the population claim to be Buddhist, 29% are Christian, and 46% are undeclared. But defining oneself as a believing Buddhist and taking part in Buddhist celebrations are different⁶ – the latter probably involving a lot of the

undeclared 46%. Countryside temples are some of the most ancient and nostalgic tourist destinations, and the Buddha's Birthday is a popular celebration. It is difficult to tell whether young people are shunning the religion because of scandals and perceived irrelevance or turning to it in times of capitalist excess – the 2015 census should be revealing. Regardless, the religion is alive and well in South Korea.

Confucianism is not a religion but a political philosophy based on the teachings of the historic Master Kong (Kong Fuzi, full name KONG Qiu) and the classic *Confucian Analects*. It was part of court culture rather than popular practice, but some tenets of Confucianism – such as filial piety and 'a man cannot serve two masters' – were widely adopted and indeed still play a part in modern East Asian social relations. Neo-Confucianism, a rationalist philosophy incorporating some Daoist and Buddhist concepts, was first formulated in the Tang Dynasty but reached prominence later in history. In both pre-modern Japan and Korea, Neo-Confucianism was adopted as the main political ideology and ethical order in the Tokugawa regime and Choson Dynasty, respectively.

However, the Confucian principle of filial piety, in terms of caring for one's parents in old age, is becoming increasingly difficult in South Korea and Japan in an age of growing indifference by younger generations. Virtually half of the over-65s in South Korea live below the poverty line; support by children accounted for 72% of elderly income in 1980 but dropped to 31% in 2003⁷ – and is probably even lower now. In Japan, the poverty rate of the elderly in 2009 was nothing like South Korea's (at only 9.8%), but the number of elderly living with children decreased dramatically between 1986 (47%) and 2010 (18%).⁸ Changes in family structure, divorce, limited urban housing, and selfishness all contribute to the destruction of Confucian family values, with welfare cuts added on top.

It has been argued that (Neo-)Confucianism was ill suited to Japan as a nation of warriors,⁹ even though the samurai-scholar reluctantly conformed to the Confucian model of scholar-statesman. The tradition of education and exams may be the strongest Confucian legacy in modern Japan. Seemingly conforming to Western institutional organization, universities in particular embody the respectful relationship between teacher and student. However, the Confucian practices of rote memorization of the Classics and never challenging or even questioning the teacher have led to the suppression of creative thinking. Creativity and innovation have garnered special government promotion in the 2000s in order to overcome the negative aspects of traditional education.¹⁰

Despite the economic situations with families, Confucianism as an organized entity has never died out in South Korea; ceremonies

paying respects to one's ancestors, a Confucian rite, are carried out in non-Christian households across the land twice or even four times a year. In 2009, a worldwide conference for young Confucianists (in traditional dress) titled "The Future is Confucian" was held by the Advanced Center for Korean Studies (ACKS). Established in 1995, ACKS undertook the "development of a comprehensive database on Confucian culture and provided search services" [sic].¹¹ In 2006, it opened the Confucian Culture Museum and added 50,000 woodblocks for printing Confucian texts to its collection. The following year, it opened a Cultural Center, and then in 2008, arranged a degree course with Andong University to train translators of ancient Korean classics into modern Korean. With more than 220,000 ancient books and almost 200,000 ancient documents being conserved in its collections, it certainly is an important repository for a little practiced tradition in the modern world. One prominent scholar asserts that "because the Korean *weltanschauung* is still dominated by Confucian concepts of filial piety, loyalty, formal propriety and the value of education, Korean society may yet be called a Confucian society."¹² To back up his claim, he describes how court and household Confucian rites are still pervasive within the Korean ritual cycle.

Though discredited in the Cultural Revolution between 1959 and 1972, the idea of Confucianism has been grasped by 21c politicians in the People's Republic of China as a tool for spreading the (good) word about modern China – hence the initiative from 2004 to help fund the establishment of Confucius Institutes at universities around the world. As of the year 2014, 480 Institutes had been created, with a goal of 1000 by 2020.¹³

Friction dating to earlier times

Even in the period of early states, there were constantly shifting alliances and warfare. Four states now dominate the region, but despite these state umbrellas, local interests still tug at the political fabric. Within states, local historical and cultural affinities may be suppressed or, conversely, celebrated in the name of unity. Between states, rival claims to territories are still with us. Two particular problems stemming from the early state relations, discussed below, are The Northeast Asian History Project and the relations of Wa/Yamato with the southern Korean Peninsula, while the difficulties with Tibet and Xinjiang are just a few of the modern frictions that have deep cultural roots. Moreover, in all three East Asian countries, we can see throughout prehistory that there were considerable differences between northern and southern cultures, and that on the Mainland

the west has often formed an independent region. These patterns underlie whatever unity is desired or has been achieved so far, and it is not impossible to think that such divisions might continue or reappear in the future. It is not possible to understand the current situation without an understanding of these histories, and history teaches us to be flexible because the status quo never remains as such.

Three issues from the 4c to 6c still impact modern nation-state relations: 1) Mimana in the southeastern Peninsula, 2) keyhole tombs in the far southwestern Peninsula, and 3) Koguryo's vast territorial spread.

The problem with Mimana

Mimana is portrayed in the *Nihon Shoki* as a Yamato 'colony' in the Kaya area in the 4c; although some elite objects found in Kaya tombs came from Yamato in conjunction with the iron trade (see Figure 14.5), they do not add up to a 'colony'. In the late 5c, Yamato maintained relations with Tae-Kaya while the latter struggled to assert itself in the face of Paekche on the west and Silla on the east. Kyushu-type tombs that appeared in the coastal Kaya region and in the southwestern Peninsula in the early 6c are interpreted as belonging to Wa troops brought over specifically by Peninsular groups to help maintain their territories.¹⁴ By the late 6c, there was an institution anachronistically named in the *Nihon Shoki* as Nihonfu (Japan headquarters) but originally termed Wafu.¹⁵ Scholars agree that it was "a military or diplomatic office rather than...a political administration" located in Alla-Kaya;¹⁶ but they disagree about its affiliation: with Kaya, Paekche or Yamato (Wa). Notably, Paekche descendants from Yamato were responsible for regulating exchanges of information and goods across the straits during the late years of the Paekche–Yamato alliance.¹⁷ The alleged existence of Mimana is often said to have been used to justify Japan's annexation of the Peninsula in the early 20c.¹⁸ And the latter still imbues political relationships with bitterness, despite the once friendly alliance between Paekche and Wa.

Keyhole tombs in Korea

As for the keyhole tombs in the southwest Peninsula, there are two kinds: those that in both shape and construction technique are indistinguishable from tombs seen in Kyushu, and those that diverge in various ways. These tombs indicate communications between Kyushu rulers and the southwestern part of Mahan (one of the Samhan divisions). Some archaeologists maintain that these

tombs were built at the invitation of Paekche,¹⁹ but the southwestern Peninsula was not incorporated into Paekche until the mid-6c, after which the keyhole tombs disappeared.²⁰ If Yamato maintained a port of trade for obtaining iron in the 5c in the southeast, and if Kyushu magnates maintained relations with southwestern chieftains, this might explain why a Yamato king petitioned the Liu Song Court (420–479) in the southern Mainland, asking that he be confirmed as “Generalissimo Who Maintains Peace in the East Commanding with Battle-Axe All Military Affairs in the Six Countries of Wa, Paekche, Silla, Imna, Chin-han, and Mok-han”,²¹ naming Imna (Kaya), Chin-han (southeast) and Mok-han (southwest) separately from Paekche and Silla. The Liu Song Court nevertheless responded by granting him only the titles of “King of Wa” and “General Who Maintains Peace in the East”.²² Again, what we are seeing here are political arrangements that are completely at odds with modern state boundaries and cannot be judged according to them.

Koguryo split between two states

Between 2002 and 2007, the PRC sponsored a Northeastern Prehistory Project carried out under the CASS umbrella. It was stimulated by the prospect of Korean unification and by worries about the resulting status of the resident Chinese-Korean population in the northeastern province of Heilongjiang (and its ramifications among other national minorities). Defensive measures involved claiming the Koguryo peoples and state of the early 1m BC as belonging to Chinese history, rather than to Korean history as had been taught in Chinese schools up until the mid-1980s.²³ This, of course, alarmed Korea’s scholars and general public,²⁴ many of whom in return began treating Manchuria (much of which belonged to 6c Koguryo) as part of Korean history. The confrontation abated somewhat in the late 2000s – but not before it became a worldwide issue in 2004 when the PRC and the People’s Democratic Republic of Korea submitted competing applications for Koguryo cultural materials to be listed with UNESCO. Three Koguryo cities and five tombs in Liaoning and Jilin provinces were inscribed on the UNESCO World Heritage List for the PRC, and 30 or so Koguryo tombs in Pyongyang were inscribed for North Korea. In all of the recommendations and decision documents, the two countries were urged by UNESCO to work together in the future for joint, transboundary nominations of Koguryo culture.²⁵

The importance of national heritage

Present-day emphasis on national heritage can be seen as one way that the current nation-states try to counter the cyclical rise and fall of states that we have seen occur particularly on the China Mainland and the Korean Peninsula. It is also a way to integrate the many peoples making up the citizenry today who originally belonged to separate ethnic groups, religious groups, and indeed even separate states. Using this concept of national unity to promote the national culture, however, may lead into the traps of claiming “the greatest” or “the first” of anything or simply thinking “ours is the best”.²⁶ Instead, if citizens “can now acknowledge the very basic fact that just as *our* culture and history are important, so are the culture and history of *other* countries”, this would be a very positive step.²⁷ This statement surely can apply to any of the East Asian countries.

While recognizing the unique aspects of national cultures and savoring them for their diversity, we must also recognize that the East Asian countries share many values and attitudes that differ from those in the West. It is the shared East Asian elements rather than culturally unique elements that I wish to comment upon here.

The role of the state in protecting cultural properties is very strong in East Asia. All three nation-states have laws that extend state ownership over buried cultural properties, and the governments actively intervene to protect, maintain and utilize cultural properties in their national lifestyles. What began as a reaction to the destruction of cultural properties in the late 19c and 20c has become very involved proaction by the governments. The fact that landowners do not own the cultural properties therein dramatically expands the need for archaeological activity in these countries. Private ownership of objects (discounting heirlooms) or sites can only be realized after the state has finished determining their value and the need for their preservation. The worry that new archaeological discoveries will be co-opted by the state does indeed produce a backlash of private pilfering or refusal to give permission for academic excavations.

The matter of protection and preservation of cultural properties goes far beyond archaeological excavation and interpretation of the kind represented in this book. The business of cultural properties protection and preservation in East Asia often began with the need to stop the destruction or loss of such properties through construction damage, rampant urbanization, theft and looting. The antiquities market dependent on poor ‘source’ states and rich ‘market’ states has fueled the latter activities in China.²⁸ The dark side of the antiquities trade affects all efforts to protect archaeological remains. Traffic in

looted artifacts is still a great problem in China, with ramifications for museums and collectors throughout the world.

Preservation laws of Japan initiated in the late 19c formed the model for legislation in South Korea and China and also for the development of UNESCO policies and systems of designation. Each East Asian country has a system of designation of important cultural properties. In addition to the designation of national treasures and historic sites, zoning gives broader protection to historic site areas, cities and neighborhoods. East Asian states have access to advice from ICOMOS (International Council on Monuments and Sites), an advisory body to UNESCO founded in 1965, and indeed they have members who participate in the ICOMOS advisory committees. Thus, heritage in the modern world is truly an international enterprise.

One of the earliest impacts of UNESCO was the 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. In 1983 South Korea and the United States accepted the convention, and North Korea ratified it; China accepted in 1989, and Japan and the United Kingdom in 2002.²⁹

Next, UNESCO formulated the 1972 Convention concerning the Protection of the World Cultural and Natural Heritage.³⁰ It has since had a decisive influence in bringing some of the masterpieces of East Asian archaeology to world attention using its designation of World Heritage Sites. Currently 'China' (as listed, meaning the PRC – not Taiwan)ⁱ has 47 World Heritage Sites, including the archaeological sites of Zhoukoudian, the Great Wall, Qin Shihuangdi's tomb and the Ming and Qing Dynasty imperial tombs, rock carvings at Dazu, the Longmen and Yungang Buddhist grottoes, and the Silk Roads. North Korea has two registered sites, including Koguryo tombs in Pyongyang; and South Korea has 11: two fortresses (Hwasong and Namhan-sansong), dolmen sites, Sokkuram Buddhist Grotto, and the Kyongju historic area. Japan's 18 registered sites are mostly broad categories, but three explicitly include archaeological resources in Okinawa, Nara, and Hiraizumi.

This system of designation, extended worldwide, has had good and bad implications for archaeological sites: excellent salvation for threatened sites but exposure to the deleterious effects of mass tourism. Moreover, the emphasis on 'heritage' that this entails also supports a formalization of nationalistic objectives. Since East Asian archaeologists have traditionally been trained mainly as cultural

ⁱ Not being a member of the United Nations, Taiwan (Republic of China) has been denied the right to receive any UNESCO designations.

historians – seeking to elucidate local development, tracing the historical roots of their own societies, and re-creating the lifestyles of former inhabitants in particular periods – archaeology as presented on national levels is essentially ‘nationalistic’.³¹ This is despite the international collaboration in excavation and conservation projects, and despite the increasing attention paid to Western theory. One feature of this cultural nationalism is the effort to show continuity of the current national units through time: speaking of 5000 years of Korean art,³² or using the Hongshan culture to extend the reach of Chinese ‘civilization’ⁱⁱ back into the Neolithic,³³ or using Kofun-period tombs in Japan to define a long-lived state.³⁴

Thus we have a dichotomy in the presentation of archaeology in East Asia: among researchers, there is a tendency for East Asia to be drawn into Western discussions of socio-cultural development; but among local museums and government agencies, there is a focus on the highlights of local sequences that are both inwardly important to views of self-development and outwardly celebrated for national identity. Then, within nation-states, there is tension between the different regions or even time periods that are employed in nation building. For example, right-wing school textbooks in Japan privilege the Jomon over Yayoi for creating a sense of national identity: the Jomon people are portrayed as living in harmony with nature, while the Yayoi period – despite representing the initiation of the agricultural regime that supported historic development – is thought to be too closely associated with the Korean Peninsula.³⁵ This tendency to isolate the nation-state from its neighbors, with whom it shares so much past history, is divisive when that shared history could equally be used in the service of reconciliation. As one writer put it, there may be a slow progression from cultural nationalism to cultural internationalism,³⁶ but surely it is worth the journey.

Tourism has become big business, capitalizing on ‘heritage’ as a draw for visitors. On-site museums are an effective way of informing the public about the archaeological site being visited. These are especially necessary when few physical features of the original site survive. In this case, reconstructions are also effective, but these often do not conform to the UNESCO rules of maintaining a cultural property intact without modification. The desire to attract tourists has led in some cases to manipulation or misrepresentation of archaeological data.³⁷ Highlighting of the value of archaeological objects through antique auctions, however, has led to ever increasing problems with looting in China, and it is a sad state of affairs that even in the second decade of the 21c, “people often fail to distinguish

ⁱⁱ See the discussion on ‘civilization’ in Xu, P. 1999.

between archaeology and antiquarian studies, becoming confused about differences between excavation and treasure hunting.”³⁸

The growing popularity of on-site museums, it is argued,³⁹ is changing the way art historians evaluate items of material culture. Because the excavated objects and site features are displayed together, instead of the objects being disassociated from their original context as in a traditional museum, there is a greater understanding of the relationship between objects, the decisions made by their producers and consumers in terms of materials chosen, techniques shared between media, and how they were differentially used in spatial as well as functional terms. These are new concerns to the art historian and represent a convergence with archaeology that should bring greater understandings of past material culture.

In closing, perhaps it is useful to draw attention to the way the past is conceived in East Asian countries. Time goes upward as it goes backward and comes downward as it comes forward. This often leads to statements in archaeological literature about the ‘upper limit’ (i.e., the oldest) and the ‘lower limit’ (i.e., the youngest) of cultures and time periods (Table 16.1). This is the exact opposite of stratigraphic reasoning, where the highest level is the youngest and the lowest level is the oldest.⁴⁰ These differences in thinking can easily trip one up in understanding the archaeological record, making it even more imperative for the serious researcher to learn the languages as well as the cultures of East Asia.

	To go back in time	To come forward in time
Japanese	<i>saka-noboru</i> ‘to climb a hill’	<i>kudaru</i> ‘to descend’
Korean	<i>olla kada</i> ‘to climb up’	<i>nerida</i> ‘to descend from’
Chinese	<i>guoqu</i> ‘to “pass” to the past’	<i>xialai</i> ‘to come down’

Table 16.1 Time words in East Asian languages

Further reading

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Appendix A

Scientific dating

Science has revolutionized the way we view archaeological phenomena: geological periods are used as routinely as cultural periods. We live in the Quaternary period of geological time, which can be divided into the Pleistocene (now dated 2.6mya–11.6kya)¹ and the Holocene (from 11,600 years ago). The Palaeolithic period used to be confined to the Pleistocene, but with increasing fossil finds back into the Pliocene, the study of human evolution exceeds the Quaternary in depth. Australopithecines are now included in the new category of ‘hominins’, which separates us from other primates (themselves now included in the larger category ‘hominids’). Which species was it that actually migrated out of Africa to colonize East Asia? And when? These are still big questions to be answered in the Peopling of East Asia.

The Pleistocene and Palaeolithic archaeology used to be conceptualized in terms of four great glacial periods, but now it is known that glacial and interglacial periods occurred frequently on 40,000-year cycles in the Early Pleistocene and on 100,000-year cycles from the Mid-Pleistocene onward, in accordance with Earth orbital variation. These cycles are revealed by differences in oxygen isotope values ($\delta^{18}\text{O}$) – the ratios between heavy and light oxygen $^{18}\text{O}:^{16}\text{O}$ – as recovered from frozen water (H_2O) in ice caps, and calcium carbonate (CaCO_3) from shelly foraminiferans dwelling on the ocean bottom (benthic) or from limestone cave speleothems (e.g., stalactites and stalagmites). Oxygen isotope ratios serve as proxies for sea surface temperatures and can readily be related to global temperature change and sea-level rise and fall; they can also be correlated with the palaeomagnetic records of terrestrial loess deposits. Thus, one sees more and more, in writings on the Palaeolithic, events dated to OIS (Oxygen Isotope Stages) or MIS (Marine Isotope Stages). While ice core data go back to

ca. 150,000 years ago, marine records extend back 2 to 3 million years;² the $\delta^{18}\text{O}$ distribution curves are essentially the same where they overlap.

A number of ‘absolute dating’ methods are used in archaeology: potassium-argon (K/Ar), argon-argon (Ar/Ar), uranium series (U/Pb), thermoluminescence (TL), optically stimulated luminescence (OSL), electron spin resonance (ESR), palaeomagnetism or magnetostratigraphy, fission-track, obsidian hydration, tephrochronology, biochronology including faunal dating, and the DNA molecular clock among others.³ Many of these have particular problems of accuracy, and methodological advances are always being made so that dates produced a while ago may no longer be accurate.

Of the scientific techniques, radiocarbon or ^{14}C dating is still the most well used technique in archaeology, but with expense leading to infrequent use, disagreements about calibration schemes, inconsistent or unclear citation forms (bp, BP, cal., BC, BCE, ka, kya, kyr), and simple denial that such dates are accurate, few archaeological entities in East Asia have been firmly dated. Radiocarbon dating is dependent on the amount of the ^{14}C isotope in carbon dioxide in the atmosphere, which varies over time. Thus, to produce calendar dates from radiocarbon dates, the latter must be calibrated according to tree-ring dates, speleothem ranges, or marine stratigraphy. Even when dated and calibrated (‘cal.’), resulting dates differ according to type of material, method of dating, regional variation, and calibration curve used – a problem for science in general.

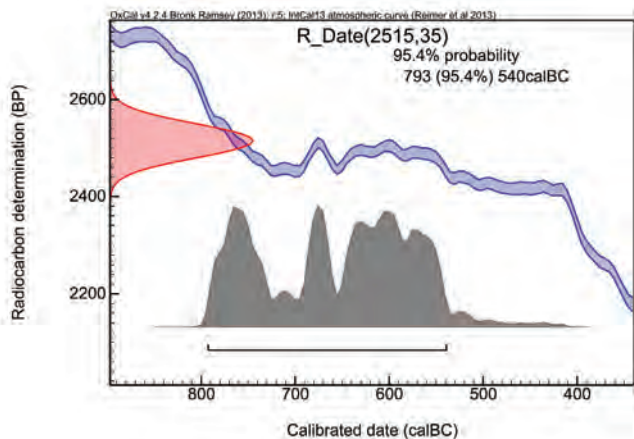
Originally, a distinction was made between bp (uncalibrated) and BP (calibrated), but now one often finds BP referring to the uncalibrated radiocarbon date without its range being given. Thus, a system has developed to state ‘cal’ if calibrated to make it clear. Often a particular work will not state whether the dates have been

calibrated or not, with the only surety provided by the 'cal' abbreviation. The 'cal.' designation in this work indicates that the radiocarbon date has been calibrated by tree-ring dates up to 12.55 cal.kya (12,550 years ago) or beyond that to 50 cal.kya (50,000 years ago) by marine carbonates to give specific calendar years.⁴

Each raw ^{14}C date has a specific inherent range. For example, one radiocarbon date for Fukui Cave in Japan is $12,500 \pm 350$ bp; the 'bp' notation means 'before present', the 'present' being 1950 when ^{14}C dating began. The $\pm$ indicates one standard deviation in accuracy of the measurement. Thus, the true date for Fukui Cave lies somewhere between 12,150 and 12,850 radiocarbon years before 1950, but the exact date is unknown. Ideally, the whole range is calibrated (equaling, in this case, 11,620–13,550 years ago),⁵ but often a single date within this range is chosen with the other possibilities masked.

Many calibrated dates have been calculated with the IntCal04 and IntCal09 curves and now with IntCal13,⁶ so it must be noted that these dates will not match those given as raw dates or even as dates calibrated with other methods in the previous literature. Some of these calibrated dates will also prove to be inaccurate, since much of the information needed to calibrate them correctly was not recorded. The IntCal calibration program as illustrated below provides a probability measure that the dates fall within a certain range, and the growing use of radiocarbon dating using accelerator mass spectrometry (AMS) means that dates can be calculated from very small amounts of materials, such as one rice grain, and they provide a much smaller range of deviation (e.g., ± 30 rather than ± 350 as above). Thus, AMS date ranges are tighter and considered to be more accurate.

The Japanese Jomon and Yayoi chronologies are currently being rewritten according to AMS dates, causing much divergence with the previous literature. One problem with the time period of the Jomon–Yayoi transition is that the calibration 'curve' is relatively flat in the 1m



Example of IntCal calibration of ^{14}C date of 3000 ± 30 bp:⁷

BC; this also affects Zhou period and Mumun period dates. Without an inclined (rather than flat) distribution of calibrated dates, any one raw ^{14}C date seemingly has a very large range within the calibrated date. Even with AMS dates, this problem is not entirely solved, but techniques (such as 'wiggle-matching') are being developed to overcome the 1m BC plateau.

In short, datings provided in this book must be taken with a grain of salt until the technologies are refined.

In the above plot, the Y-axis (left) shows radiocarbon concentration expressed in years 'before present'; the bell curve on that axis indicates the ^{14}C concentration in the sample. The X-axis (bottom) shows calendar years as derived from tree-ring data; the wide multi-modal curve on that axis shows possible ages for the sample (the higher the peak, the more likely that age is). The wide diagonal 'curve' through the center of the graph is the calibration curve whose width includes a ± 1 standard deviation. The X-axis curve is produced by calculating how the Y-axis curve interacts with the calibration curve (see the animation at <http://www.chrono.qub.ac.uk/blaauf/wiggles/calibrate.html>).

Further reading

Walker, Mike J.C. (2005) *Quaternary dating methods*. Chichester: John Wiley & Sons.

Appendix B

List of abbreviations

Only those abbreviations that occur frequently without nearby explanation and are likely to befuddle many readers are explained here.

#: number (vs. UK 'no.')

AAR: amino acid racemization (dating)

ACKS: Advanced Center for Korean Studies

adv: advanced

AMH: anatomically modern humans

AMS: accelerator mass spectrometry (for radiocarbon dating)

ARIUA: Asian Research Institute for Underwater Archaeology

AT: Aira-Tanzawa volcanic ashfall

B/A: Bølling/Allerød

BA: Bronze Age

BP/bp: Before Present (used in radiocarbon dating where 'present' is the year 1950; see Appendix A)

c: century: 1c BC = first century BC

C: carbon

C.: Chinese pronunciation

C₃: carbon 3 plants

C₄: carbon 4 plants

ca.: *circa*, "approximately"

cal.: Calibrated (radiocarbon dates calibrated to other standard chronologies, e.g. dendrochronology)

CASS: Chinese Academy for Social Sciences

CHA: Cultural Heritage Administration of Korea [S. Korea]

cm: centimeter

CKJ: China, Korea, Japan = Barnes 1993/1999: Barnes, G.L. (1993) *China, Korea and Japan: the rise of civilization in East Asia*. London: Thames & Hudson (hardback)

Barnes, G.L. (1999) *The rise of civilization in East Asia: the archaeology of China, Korea and Japan*. London: Thames & Hudson (paperback)

CP: Central Plain

EMH: early modern humans

EMP: Early Metal Province

ESR: electron spin resonance (dating)

EUP: early Upper Palaeolithic

FT: fission-track (dating)

GIS: Geographical Information Systems

GLB: Gina Lee Barnes

GPS: Global Positioning System

ha: hectare

H&G: hunting and gathering

HE: *Homo erectus*

HS: *Homo sapiens*

HSS: *Homo sapiens sapiens*

IA: Iron Age

IAMC: Inner Asian Mountain Corridor

J.: Japanese pronunciation

K.: Korean pronunciation

KCPA: Korea Cultural Properties Investigation and Research Institute Association [S. Korea]

KLC: Korea Land [and Housing] Corporation [S. Korea]

KOSUWA: Kyushu Okinawa Society for Underwater Archaeology

kya: thousand(s) of years ago; or just 'ka'

LCZ: Liangchengzhen

LGM: Late Glacial Maximum (*ca.* 21–19kya)

LUP: late Upper Palaeolithic

MCST: Ministry of Culture, Sports and Tourism [S. Korea]

MIS: Marine Isotope Stages

mya: million(s) of years ago; often written as ma

m: in a measurement = meter

m: as a date = millennium: 5m BC = fifth millennium BC

MTC = Mounded Tomb Culture

mtDNA: mitochondrial DNA (only inherited from the mother)

Nabunken: Nara Institute for Cultural Properties
 NCP: North China Plain
 NRICH: National Research Institute for Cultural
 Heritage [S. Korea]
 NRY: non-recombinant Y-chromosome DNA
 OH: obsidian hydration (dating)
 OIS: oxygen isotope stages
 Pen/Insula: Korean Peninsula + Japanese Islands
 pro-domes: pro-domesticates
 r.: reign dates
 RCYBP: radiocarbon years before present
 RSL: relative sea level
 SEA: Southeast Asia

SEAA: Society for East Asian Archaeology
 SEM: scanning electron microscope
 s.l.: *sensu lato*, in the wide or broad sense
 s.s.: *sensu stricto*, in the narrow sense
 TB: Tokyo Bay
 TL: thermoluminescence
 TLV: common term in English for mirror designs
 resembling the letters T, L, and V
 U/Pb: uranium/lead series (dating)
 UP: Upper Palaeolithic
 XJD: Xiajiadian culture
 YD: Younger Dryas

Appendix C

Language issues: pronunciation and alternative spellings

The romanization systems adopted in this book (see Preface) share one felicitous feature: in all three standard languages, the five vowels a, e, i, o, u are pronounced more or less as in Spanish. Most consonants are also close to those in Spanish, but with numerous exceptions. Here are some pointers about pronunciation and spelling, and coping with different romanization systems.

C.1 Chinese pronunciation and alternative spellings

In 1979, the People's Republic of China (PRC) adopted the *hanyu pinyin* system of romanization, commonly called Pinyin. It is one of several possible systems, but in academe it replaces the Wade-Giles system that dominated earlier sources. There are many online conversion tables to help you figure out that, for example, Qin in Pinyin is written Ch'in in Wade-Giles.

Since Pinyin is basically meant to correspond to Mandarin (Standard Chinese), almost all terms in this book are thus romanized as if pronounced in Mandarin, as is the tendency in Western-language scholarly publications. But the same Chinese characters can be pronounced very differently in the many regional dialects, and in fact many of the sites mentioned would have quite a different sound in their own locality! (Dialectal differences in pronunciation are far less of an issue in the much smaller countries of Korea and Japan.)

Some letters of the Pinyin system deviate significantly from the pronunciation an English speaker might expect. Pinyin and (approximate) English are shown before and after the > symbol respectively.

- c > ts; q > ch; x > sh; zh > j as in 'judge'.
- The i in si and zi sounds like the vowel in English 'should' but with minimal lip-rounding.
- ia (as in Dian) sounds like the ye in 'yes'.
- ei rhymes with English ay as in 'way', but a non-diphthongal e sounds more like the vowels in 'fun', 'foot' or 'fed', depending on context.

The Wade-Giles system, often found in earlier Western-language publications, uses consonants easier for an English speaker to figure out, though a few might be puzzling. Here are the more important differences between Pinyin and Wade-Giles (before and after the > sign respectively):

p, t, k, c > p', t', k', ts'; b, d, g, z > p, t, k, ts; r > j; x > hs; q > ch'; zh & j > ch; -ong > -ung; -ian > -ien; -ui > -uei; -uo > -o

Names of sites discovered since Pinyin's adoption are unlikely to appear in Wade-Giles, but here are a few of the more frequently encountered equivalences of longstanding names. Note that the apostrophe in Wade-Giles is often omitted, which means that Pinyin's Zhengzhou and Chengzhou may both end up as Chengchou in Wade-Giles.

In this text (Pinyin)	Wade-Giles or others
Chengzhou	Ch'engchou
Chu	Ch'u
Jin	Chin
Lantian	Lant'ien
Luoyang	Loyang
Qi, Qin, Qiang	Ch'i, Ch'in, Ch'iang

Shandong	Shantung
Tang	T'ang
Xia	Hsia
Xiaotun	Hsiaot'un
Xibeigang	Hsipeikang
Xiongnu	Hsiungnu
Sichuan	Szech'uan
Yangzi	Yangtzu, Yangtze
Zhengzhou	Chengchou
Zhongyuan	Chungyüan
Zhou	Chou
Zhoukoudian	Chouk'outien

C.2 Korean pronunciation and alternative spellings

Headaches! We encounter multiple romanization systems, variants of one of them, many changes in initial consonants of suffixes, and other bothers that challenge the reader and the writer.

The McCune-Reischauer (MR) system, launched in 1937, is favored by most Westerners and indeed by North Korea (with minor variants). In MR, an apostrophe after voiceless consonants p, t, k or ch indicates stronger aspiration (expulsion of breath), and a breve mark (˘) over vowels o and u shows a different pronunciation (see below).

In 2000, South Korea – wanting to avoid the breves and apostrophes of MR – introduced the Ministry of Culture and Tourism (MCT) romanization system, now preferred there (see www.eki.ee/wgrs/rom2_ko.htm).

Many writers simply choose a simplified version of McCune-Reischauer, omitting breves and apostrophes. For consistency and other reasons, I too have tried to present all Korean names in this simplified MR; the table below shows equivalents among MR and MCT for most names mentioned in this book, as well as the 'full' MR version with apostrophes and breves. I have also decided not to modify the place-name suffixes -ri, -dong and -do (see below) even though their pronunciation changes in many words; this is because most romanizers maintain these particular forms.

The following vowels (among others) deviate from the simple Spanish five-vowel model:

- MCT eo = MR ǒ, pronounced close to English 'ought'; and MCT eu = MR ŭ, close to 'should'.
- the diphthongs ae (close to 'car') and oe (usually close to the full word 'way').

Many consonants change pronunciation when two morphemes are combined, although place-name romanization often ignores this. Thus unaspirated p/t/k/ch generally become voiced, as b/d/g/j, after a vowel or a nasal consonant. Korean village names often end in -ri 'village', which however is pronounced -ni when the previous word ends in a nasal (as in Taep'yǒng-ri, pronounced Taep'yǒng-ni). And a final k will change to ng when followed by that -ri, while the -ri changes to -ni: Chǒngok + -ri > Chǒngongni. However, the latter site is in fact, strangely, mostly referred to in Western-language sources as Chongokni; it has also been turned into an adjective, as in 'Chongoknian industry'. Sigh! If searching the internet for information about a site ending in -ri, you should search also for -ni, for the name without this suffix – and, alas, also in both romanizations!

In addition to this suffix -ri, four other place-name suffixes are common: -dong meaning 'ward'; -do, 'island'; -san, 'mountain'; and -sǒng, 'fortress'. These may appear as part of the word/name itself, e.g. T'osǒng, literally 'earthen [walled] fortress'.

McCune-Reischauer now wisely offers the use of an apostrophe to distinguish -n'g- (when the two letters belong to different syllables and are pronounced separately, as in 'thin guy') from -ng (when this is a single sound at the end of a syllable, as in 'singer').

The following chart shows most of the spellings different from those used in the text; those that remain the same in all three systems are not listed (e.g. Samhan). Under 'full MR', I show the form the word would have when a suffix is merged in normal speech (though such mergers do not always occur).

In this text	full MR if different	MCT if different from text
Anganggol	An'anggol	
Chinhan		Jinhan
Chitam-ri	Chit'amni	Jitam-ri
Chongok-ri, Chongok(-)ni	Chŏn'gongni	Jeongok-ri
Chongsan-ri	Chŏngsanni	Jeongsan-ri
Chonjon-ri	Ch'onjonni	
Choson	Chosŏn	Joseon
Choyang-dong		Joyang-dong
Chulmun	Chŭlmun	Jeulmun
Kaesŏng	Kaesong	Gaesong
Kaya		Gaya
Kimhae		Gimhae
Koejong-dong	Koejŏngdong	Goejeong-dong
Koguryo	Koguryŏ	Goguryeo
kolpum	kolp'um	golpum
Komdan-ri	Kŏmdanni	Geomdan-ri
Konam-ri	Konamni	Gonam-ri
Kumsong	Kumsŏng	Geumseong
Kungnae-song	Kungnae-sŏng	Gungnae-seong
Kuya		Guya
Kwangju		Gwangju
Kyongju	Kyŏngju	Gyeongju
Mongchon	Mongch'ŏn	
Nuk-do	Nŭkto	Neuk-do
Nunggok	Nŭnggok	Neunggok
Okhyon	Okhyŏn	Okhyeon
Paekche (a.k.a. Kudara)	Paekche	Baekje
Paekdu		Baekdu
Panwol-song	Panwol-sŏng	Banwol-seong
Pibong-ri	Pibongni	Bibong-ri
Puyo	Puyŏ	Buyeo
Pyonggodong	P'yonggodong	
Pyongyang	P'yŏngyang	Pyeongyang
Pyonhan	Pyŏnhan	Byeonhan
Songguk-ri	Songgungni	Songguk-ri
Sŏngnam		Seongnam
Taedong		Daedong

Taehyundong		Daehyundong
Taejuk-ri	Taejungni	Daejuk-ri
Tae-Kaya	Taegaya	Daegaya
Taejŏn		Daejeon
Taepo	Taep'o	Daepo
Taepyong-ri	Daep'yŏngni	Daepyeong-ri
Taho-ri		Daho-ri
Tongsamdong	T'ongsamdong	
Tosong-ri	Tosŏngni	Doseong-ri
Unsong-ri	Ŭnsŏngni	Eunseong-ri
Yongnam	Yŏngnam	Yeongnam
Yonjae-ri	Yŏnjae-ri	Yeonjae-ri

C.3 Japanese pronunciation and alternative spellings

The pairs below show the main differences between the Revised Hepburn and Japanese government Kunreishiki systems (before and after the > sign respectively):

shi > si; chi > ti; tsu > tu; fu > hu; shu > syu;
sha > sya; ji > zi/di; jo > zyo; ju > zyu; and
when macrons are included to mark long (in
duration) vowels: ō > ô; ū > û

The Japanese government has long accepted the use of Hepburn for romanizing place names. This means that Western-language publications on Japan rarely trigger the confusion encountered with Korean names, so no list of equivalences will be given here. Here are just two examples of site names in this book that would look very different in Kunreishiki: Chōjagahara > Tyōzyagahara; Matsushima > Matusima. Obviously, Hepburn gives most non-Japanese readers a much better chance at getting the correct sound!

Appendix D

Institutional histories 1092–2014ⁱ

Archaeology emergent

The present East Asian governments follow a long tradition of claiming continuity with the first centralized regimes of the distant past: the Shang of 3200 years ago for China; Yamato of 1500 years ago for Japan; and the Three Kingdoms of at least 1500 years ago for the Koreas. Between then and now, perceived continuities were maintained not only through written history but also through a concern with the transmission of elite material culture.

The first instance of antiquarianism, in Song-Dynasty China (960–1279 AD), focused on the revival of ancient court culture.¹ Interest in the past was stimulated by the rediscovery of Confucianism in reaction to the other-worldly concerns of Buddhism. Scholarship came to focus more on secular subjects, and sophisticated historiographical methods were developed. Confucianism encouraged empiricism in the cataloguing of bronzes and jades dating from the Shang to Han Dynasties lodged in imperial and private collections. Surprisingly modernistic techniques of observation and representation were deployed in measuring the artifacts, drawing their profiles, describing their decoration, and copying any inscriptions. Reproductions of many objects were then made for use in court ceremonies, giving the rituals an authenticity based on historical precedent. This interest in ancient objects spurred the “bronze and stele” antiquarians that preceded archaeologists in China.²

Contemporaneously with Song in 12th-century Japan, concern grew for the preservation of ‘court etiquette’ as ancient court society gave

way to a militaristic feudal order. Studied were not only the intangible aspects of bureaucratic ranks and positions but also the material aspects of palace architecture, banqueting utensils, dress, weaponry, etc.³ This concern subsequently encompassed actual palace and tomb sites of previous emperors; and in 1692, the first recorded excavations in Japan took place as a regional Tokugawa daimyo dug two tombs to investigate a stone inscription.⁴ A similar excavation was undertaken in 1748 in southeastern Korea by the father of a local Choson governor; he “excavated six ancient tombs to see if they were the lost tombs of his ancestors from the Koryo Dynasty”.⁵ Scholars of the Qing Dynasty (1644–1911) in China researched historical geography and visited ancient tomb and historic sites.⁶

Beginning in the 19th century, the revival of Neo-Confucian scholarship encouraged objective observation and ‘investigation into things’, resulting in popular scholarly pursuits focusing on objects. In Japan, major exhibitions of curious rocks and artifacts were held, and the many catalogs and treatises written about such collections demonstrate that these scholars not only followed the principles of systematic study but also employed techniques of description and classification,⁷ echoing the pioneering antiquarianism of Song.

It was characteristic of antiquarian thought in these countries that material objects from the past were assigned to peoples or ages named in historical documents. In other words, concepts of the past were entirely confined to written history – a limitation that also plagued early European antiquarianism.⁸ No populations or time periods apart from those described in the documents could possibly be imagined, especially since the documents often incorporated the mythological creation of the universe and humankind and

ⁱ The text here is repeated virtually verbatim from CKJ: ch. 2 with some minor updates; the listing below is not comprehensive but indicative.

so provided a ready-made history back to the beginning of time. The great contribution of modern archaeology was not the introduction of methods of observation, description and excavation, which as noted above were all variously present in the antiquarianism of the region. It was the introduction of the possibility of a past – the very ‘idea of prehistory’ – that resided externally to written history and was accessible through excavation.⁹

Inherent in antiquarianism was the knowledge that ancient objects could be found in or on the ground. Also, the general locations of former palaces or capitals were known and even visited for information.¹⁰ But the concept of a ‘site’ (especially one that was non-imperial in nature) that could be investigated systematically through excavation to reveal something of the lifeways of past peoples was only introduced with archaeology.

Archaeology from the West

The beginning of the discipline in Japan is usually attributed to the American zoologist Edward S. Morse, who arrived in Japan in 1877 – a mere 12 years after the publication of the seminal book by Sir John Lubbock, *Pre-historic Times*,¹¹ that broke the historical grip on thoughts about the past in England. In China, credit for the introduction of archaeology has traditionally gone to the Swedish geologist J.G. Andersson for discovering the famous Zhoukoudian Palaeolithic site in 1921, but in the 21st century his Chinese colleagues DING Wenjiang and WENG Wenhao are included in the plaudits.¹² Both Morse and Andersson, though not archaeologists themselves, demonstrated through systematic excavation the potential for prehistoric research about a past not included in the written documents. The Insular Jomon and Mainland Palaeolithic and Neolithic cultures were all defined during these initial archaeological activities.

It is sometimes argued that the introduction of archaeology has been an instrument of Western imperialism. The case of the Korean Peninsula shows that it could also be an instrument

of ‘Eastern imperialism’, since archaeology was begun in Korea by Japanese colonial archaeologists between 1910 and 1945.¹³ The Japanese government used many of the projects and interpretations of Peninsular archaeology to justify the subordination of Korea to Japan during its period of annexation, but the actual quality of the archaeology conducted in this period was so high that the resulting publications are still necessary reference material today.¹⁴

It is interesting to note that in all three of the above cases, local students were not explicitly trained to carry on archaeological activities in these countries. The discipline became fully established only later with the renewed initiative of resident scholars themselves. Ironically, however, the eras of establishment again coincided with heavy Western influence as students and scholars began to travel abroad. HAMADA Kosaku, an art historian, studied with Flinders Petrie in England and introduced Petrie’s techniques of stratigraphic excavation to Japan in 1917.¹⁵ HARADA Yoshito, who travelled through Europe and America in 1921–1923, also brought back knowledge of new techniques.¹⁶ In 1923 LI Chi, the “father of modern Chinese archaeology”,¹⁷ finished his studies at Harvard, and was followed by LIANG Ssu-yung, who participated in excavations run by Alfred V. Kidder;¹⁸ studied at the Institute of Archaeology in London (now part of University College London) between 1935 and 1939, and eventually went on to serve as director of the Institute of Archaeology (CASS) in Beijing until his death in 1986. And in the 1950s KIM Won-yong, the doyen of Korean archaeology, studied art history at New York University, becoming the first in a long line of Korean archaeologists to enrol in American Ph.D. programs.

Needless to say, the institutions within which these individuals developed their countries’ archaeological disciplines were also Western forms of organization: museums, universities, scholarly societies, and journals. A timeline of these innovations as well as the establishment of government institutions is given in the following pages.

	JAPAN	KOREA	CHINA
	•	†S. ‡N.	*
1092			* <i>An Illustrated Study of Ancient Things (Kaogutu)</i> published by N. Song scholar LU Dalin
1871	•Imperial Household (later National) Museum established		
1876	•First cultural properties protection law passed		
1877	•Omori shellmound excavation by Edward S. Morse, naming of Jomon pottery		
1884	•Excavation of Mukogaoka shellmound, discovery of Yayoi pottery		
	•Anthropological Association of Tokyo (for prehistorians) formed by TSUBOI Shogoro		
1889			*Grum-Grzmailo brothers (Russia) investigate Chinese Turkestan
1892			*Grenard and de Rhine (France) to Chinese Turkestan
1893	•Anthropological Institute founded, Tokyo University		
1895–6			*TORII Ryuzo (Japan) investigates Liaodong Peninsula and Taiwan
1896			*Sven Hedin (Sweden) to Chinese Turkestan
	•Launching of Archaeological Society of Japan and its publication, <i>Kokogaku Zasshi</i>		
1897	•Law for the Preservation of Ancient Temples and Shrines		
1900	•First site listing compiled by Tokyo University		
1905			*TORII Ryuzo researches Manchuria
1907	•First archaeology course taught at Kyoto University by HAMADA Kosaku		
1908		†Royal Household Museum of Choson Kingdom established	
1910		†Korean Peninsula annexed by Japan; committee for archaeological investigation established	
1913	•Department of Archaeology formed, Kyoto University		
1915		†Museum of Colonial Government established, later becomes National Museum	
1917–19	•First stratigraphic excavations at Ko and Satohama sites		
1919	•Law for Preservation of Historic Sites, Scenic Spots, and National Monuments		
1920			*J.G. Andersson ‘discovers’ the Chinese Palaeolithic at Zhoukoudian and the Painted Pottery Neolithic at Yangshao-cun
1922	•First book on archaeological methods: <i>Tsuron Kokogaku</i>		
1925	•Law requiring compilation of site lists (published 1925–9)		
1926			*Publication of <i>Critical Reviews of Ancient History</i> , advocating archaeological study of the past
1927	•Tokyo Archaeological Society founded by MORIMOTO Rokuji		
1927–34			*Folke Bergman leads Sino-Swedish expedition to Xinjiang
1928			*Founding of Institute of History and Philology, Academia Sinica
			*Discovery of Black Pottery Neolithic at Longshan, Shandong Province
1928–7			*Excavation of Anyang by Institute of History and Philology
1929	•Law for Preservation of Ancient Temples and Shrines changed to Law for the Preservation of National Treasures		
			*Excavation of first complete skull of <i>Sinanthropus pekinensis</i> by PEI Wenzhong at Zhoukoudian
1930		†Formation of colonial Society for the Study of Korean Antiquities	
			*Law on the Preservation of Ancient Objects
1931			*Stratigraphic excavations at Hougang establish cultural sequence
1936	• <i>Minerva</i> debate establishing ‘idea of prehistory’		
1944			*Dunhuang Institute for Cultural Relics established
1945		†Founding of Former Royal Household Affairs Office (subsequently the CPA)	

JAPAN	KOREA	CHINA
•	†S. ‡N.	*
1946	†Founding of National Museum of Korea after Japanese colonial rule ends	
	†First excavation by Korean archaeologists, Houchong Tomb, Kyongju	
1948	•Founding of Japanese Archaeological Society	
1949	•Discovery of Japanese Palaeolithic by AIZAWA Tadahiro	
		*Chinese Academy of Sciences (CAS) established
1950	†Beginning of Korean War, suspension of archaeological work for the decade	
		* <i>Wenwu Cankao Zihao</i> publication begins, changed to <i>Wenwu</i> in 1959
1952	•Law for the Protection of Cultural Properties (combining 1919 and 1929 laws)	
	*Nara National Cultural Properties Research Institute (Nabunken) established for excavation of Heijo Palace	
		*Institute of Archaeology founded under CAS
		*Archaeology major established at Beijing University
1953	•Founding of Society of Archaeological Studies and beginning of publication of <i>Kokogaku Kenkyu</i> , originally called <i>Watakushitachi no Kokogaku</i>	
		*Cenozoic Research Laboratory reorganized into Institute of Vertebrate Palaeontology and Palaeoanthropology (IVPP),
		* <i>Kaogu Xuebao</i> publication begins
1954	•Law amended to provide for 'buried cultural properties'	
1957		* Beginning publication of <i>Vertebrata PalAsiatica</i> by IVPP
1959		* <i>Kaogu</i> publication begins
1960–62	•First site registration activities by prefectural Boards of Education at central government request; registration maps published 1965–8	
1961	†Cultural Properties Administration (CPA) established	
	†Department of Archaeology established at Seoul National University, publication of <i>Kogo Misul</i> begins	
		*Provisional Regulations on the Protection and Administration of the Cultural Heritage
1962	†Discovery of Korean Palaeolithic by G. Bowen	
	†Promulgation of Cultural Properties Protection Act	
1965	•†Cultural Properties Agreement between S.Korea and Japan for repatriation of cultural objects	
	• <i>Nihon no Kokogaku</i> series published, landmark in cultural history studies	
1966–76		*Excavations suspended during Cultural Revolution
1968	•Agency for Cultural Affairs established	
1969	†Korean Atomic Energy Research Institute (KAERI) and radiocarbon lab established	
1972		*Zhoukoudian Museum and other schools and institutes reopen after Cultural Revolution; journal publications recommence
1973	•Asuka and Fujiwara Palace Site Research Department and Asuka Historical Museum established at Nabunken	
	†Amendment to Cultural Properties Protection Act to ensure developers pay	
1974	•Center for Archaeological Operations (CAO) established at Nabunken	
1975	†Institute of Cultural Properties established in Seoul (now called National Research Institute of Cultural Heritage, NRIC, in Taejon)	
		*Article 12 in Chinese constitution requires proletariat control over scientific research

	JAPAN	KOREA	CHINA
	•	†S. ‡N.	*
1976		†Consolidation of Korean Archaeological Society and publication of <i>Hanguk Kogo-Hakbo</i>	
1977			*Chinese Academy of Social Sciences (CASS) founded
1979			*Adoption of the Criminal Law
			*Founding of the Chinese Society of Archaeology
1981			*Anthropological Department formed at Zhongshan University
1982	•	Founding of Japanese Society for Scientific Studies on Cultural Property and co-option of <i>Kokogaku to Shizen Kagaku</i> as its journal	
1983		†Signatory to the 1970 UNESCO Convention, ‡Ratified	*Cultural Properties Law co-opting buried materials as national property
1984		†Preservation of Traditional Buildings Act	
			*Opening of Anthropology Department, Xiamen University
1985		†Campaign for protection of cultural properties	
		†First Ph.D. program in archaeology initiated, Seoul National University	
1989			*Signatory to the 1970 UNESCO Convention
1991			*Administrative Measures of the People's Republic of China on Foreign Archaeological Work
1991	•	First publication of the KOSUWA Newsletter of the Kyushu Okinawa Society for Underwater Archaeology	
1992	•	Membership in Japanese Archaeologists' Association opened up internationally	
1994		†Opening of National Maritime Museum	
1994		†Yongnam Institute of Cultural Properties established (first as a corporation, now a foundation)	
1996	Creation of the Society for East Asian Archaeology (SEAA)		
1999		†Reorganization of CPA into CHA (Cultural Heritage Administration)	
1999		†Amendment to Cultural Properties Act requiring pre-construction surveys	
2000		†Korean National University of Cultural Heritage opens in Puyo (directly operated by CHA)	
2000		†Founding of Korea Cultural Properties Investigation and Research Corporation Association	
2001	•	KOSUWA renamed ARIUA (Asian Research Institute for Underwater Archaeology)	
2001			*CASS IA begins publishing <i>Chinese Archaeology</i>
2002	•	Signatory to 1970 UNESCO Convention	
2004		†Special Act for the Preservation of Ancient Cities	
2005		‡UNESCO registration of Kaesong historical zone (in N.Korea)	
2005		†Change of name from Korea Cultural Properties Investigation and Research Corporation Association to Korea Cultural Properties Investigation and Research Institute Association (KCPIA)	
2006			*China's first 'Cultural Heritage Day' 10 June 2006
2007		†National Museum of Korea begins publishing <i>The International Journal of Korean Art and Archaeology</i> (in English)	
2008		†Act for the National Trust of Cultural Heritage and Natural Environmental Assets	
2008			* Beijing University opens Center of Public Archaeology and Art

	JAPAN	KOREA	CHINA
	•	†S. ‡N.	*
2009		†Cultural Heritage Protection Fund Act	
2010		†Act for the Protection and Surveying of Buried Cultural Properties	
		†Act on Cultural Properties Repair	
		†Korea Cultural Heritage Foundation accredited as a UNESCO NGO	
2010			* Establishment of 12 National Archaeology Site Parks
2013	•Begin publishing <i>Japanese Journal of Archaeology</i> (in English)		
2014			*Begin publishing <i>Chinese Cultural Relics</i> (in English)

Appendix E

Palaeolithic finds on the China Mainland

E.1 Early Palaeolithic finds on the China Mainland in the Early Pleistocene

- compiled by author from Zhu, R. *et al.* 2008, Dennell 2009, 2012
- Note the redating of the Pleistocene (Gibbard *et al.* 2010).
- dates calculated by estimated sedimentation rate between palaeomagnetic events (see Dennell 2012)

* HE = *Homo erectus*

Early Pleistocene 2.6–0.8mya = EARLY PALAEOLITHIC				
site	date mya	tools & early human fossils	site environment	climate / stage
Yuanmou Niujuanbao	1.7	scraper, bifacial core, 2 flakes, HE*? teeth	alluvial fan near bush & forest; temperate woodland; grassland	
Nihewan Basin			temperate woodland; grassland	warm, moist
Majuangou III (=Goudi)	1.66 or 1.36	choppers, scrapers, polyhedra	lakeshore/marsh	warm, moist
Majuangou II	1.64	"	lacustrine	
Majuangou I	1.55	"	lacustrine	
Xiaochangliang	1.78–1.67 or 1.48–1.36	unmodified flakes	lakeshore	
Xiantai (=Dachangliang)	1.36	choppers, flakes, scrapers	steppe, lake margin	mild, humid
Majuangou (=Banshan)	1.32	choppers, scrapers, polyhedra	lacustrine	
Donggutuo	1.2–1.1	bipolar flaking, scrapers	lake margin	
Sanmenxia Basin Xihoudu	1.27	choppers, scrapers, flakes	lakeshore	
Lantian Gongwangling	1.15	cores, flakes, scrapers, HE	subtropical humid forest	warm

E.2 Early Palaeolithic finds on the China Mainland and Korean Peninsula in the Middle Pleistocene

- compiled from Zhu, R. *et al.* 2008; Dennell 2009; Gibbard 2010; Shipton & Petraglia 2010; Keates 2003; Bar-Yosef & Wang 2012; Miller-Antonio *et al.* 2004
- “transitional” fossils in bold
- dates calculated by estimated sedimentation rate between palaeomagnetic events unless otherwise noted; Zhoukoudian dates are derived from a variety of techniques (see Dennell 2009: tables 10.1 and 10.2 with some disagreement and much uncertainty)
- see Appendix A for dating abbreviations

Middle Pleistocene 780–120kya = EARLY PALAEO LITHIC

site (in China unless otherwise stated)	date mya, kya	tools & human fossils
Bose (Baise) Basin 114 localities in 800km ²	assoc. w/ 803kya tektites at Fenshudao & Damei sites	artifacts, unifacial & bifacial handaxes
Yunxian Quyuanhekou	>780kya or 600kya (ESR)	HE, artifacts
Maozhushan	664.9–631.2 (ESR)	artifacts, stone semi-circle
Zhoukoudian Locality 1		
Layer 13	720kya	artifacts
Layer 10	690–660kya 713–693kya	artifacts, fossils
Layer 8-9	660kya	fossils
Layer 7	660–590kya	artifacts, fossils
Layer 6	520kya	artifacts, fossils, burned bones, hearth
Layer 4	500kya	artifacts, fossils, burned bone & stone, ash lens
Layer 3	420kya	HE, artifacts, fire
Layer 2	417–386kya	HE
Layer 1	400kya	HE
Chenjiawo	650 or 500kya	HE, artifacts,
Luonan Basin 50 localities	?500–250kya (fauna, loess, TL)	89 bifaces handaxes, cleavers
Chongokni, Korea	>350kya	handaxes, core-and-flake tools
Unit 3	>300kya	
Unit 2b	294–231±kya (ESR, U/Pb)	
Unit 2a	208±kya (ESR, U/Pb)	
Hulu Cave (=Tangshan Hill)	wide range from 584–128.5kya (U/Pb)	HE
Longtang Cave	412±25 (ESR, U/Pb) 150–190kya (U/Pb)	fossil
Jigongshan		
Guanyin Cave		
Panxian Dadong	262–214kya (U/Pb)	fossil (intermed.)

Dali	350–250kya (U/Pb) 209±23kya (U/Pb)	fossil (intermed.)
Jinnuishan	358–221kya (ESR, UPb)	fossil (intermed.)
Zhoukoudian		
Locality 4	300kya /(U/Pb) 248, 269kya (U/Pb)	tooth
New Cave	260±40kya (TL) 175–135kya (U/Pb)	artifacts, fossils, fire, teeth
Locality 15	284–155kya (U/Pb) 140–110kya (UPb, ESR)	artifacts, fire
Locality 4	171–122kya (U/Pb)	fossil (intermed.)
Changyang	218–174 (U/Pb)	fossil (intermed.)
Dingcun	210–160kya (U/Pb)	fossil (intermed.)
Chaoxian (=Chaohu)	200–160kya (U/Pb)	fossil (intermed.)
Maba	135–129kya (U/Pb)	fossil (intermed.)
Miaohoushan Layers 5-6		fossil (intermed.)
Xujiayao	125–104kya (U/Pb)	fossil (intermed.)
Ryonggok Cave, Korea	111±10, 44.3±2 (U/Pb, TL)	fossil
Ganqian Cave	>94kya (U/Pb)	EMH
Shiyu	28,130±1370 (¹⁴ C)	EMH

Further undated *Homo erectus* (HE) remains were found at Yunxi, Yiyuan (=Qizianshan Hill), Nanzhao (Shinhua Shan), Longgu Cave (=Jianshi), Hexian.

Further Early Modern Humans (EMH) were found at Huangshanxi (=Ziyang), Yuanyang, Xiaohui Cave, Longtanshan Caves 1&2, Shuidonggou, Lianhua Cave, Wuqui Cave, Nanshan Cave, Dangcheng, Yanjiagang, Xianren Cave, Huanglong Cave, Baojiyan Cave, Bailian Cave, Zhangkou Cave, Migong Cave, Gaitou Cave, Xuetai village, Chaoyang Xigou, Xarus, and see below for the Late Pleistocene site of Miaohoushan.

E.3 Fossil hominins from the Late Pleistocene

- compiled from Mizoguchi, Y. 2011; Chen, Hedges & Yuan 1992; Kaifu & Fujita 2012; Kondo & Matsu'ura 2005; Liu, L. *et al.* 2010; Demeter, F. *et al.* 2009; Lyras *et al.* 2009; Nakagawa *et al.* 2010; Keates 2010; Bar-Yosef & Wang 2012; Matsu'ura & Kondo 2010
- see Appendix B for dating abbreviations

Late Pleistocene 120–11.6kya = Early PALAEOLITHIC 120–50ky, Upper/Late Palaeolithic 50–11.6kya

site	date	taxonomy	country
Zhiren Cave	~100kya (U/Pb)	'derived modern'/ archaic/ EMH	China
Tongtianyan Cave (=Liujiang) three dates, problematic	>153–68kya (U/Pb) >153–111kya >67kya	AMH/late HS	China
Xujiayao	125–100kya	archaic	China

Tam Pa Ling	~63–46kya (U/Th)	EMH	N. Laos
Tianyuan Cave	39,713±882 cal. BP	AMH	China, near Beijing
Miaohoushan	38.4–30kya (U/Pb)	fossil EMH	China
Yamashita-cho Cave 1	36,644±1353 cal. BP	AMH	Japan, Okinawa
Zhoukoudian Upper Cave (=Shangdingdong)	ca. 29–24kya	indeterminate	China, near Beijing
Pinza-Abu	26,800±1300 bp 26,800±1300 bp		Japan, Okinawa
Salkhit	?20kya	AMH	Mongolia
Shiraho-Saonetabaru Cave	20–19kya	modern	Japan, Okinawa
Minatogawa (MMS)	18,250±650 – 16,600±300 bp	"insular" HS	Japan, Okinawa
Hamakita (Negata) Lower	17.9 14C kya	Homo sp.	Japan
Shiraho-Saonetabaru Cave	16kya	modern	Japan, Okinawa
Shimajiribaru Cave	15,200±100 bp	modern	Japan, Okinawa
Hamakita (Negata) Upper	14.0 14C kya	Jomon-type Homo	Japan, Mid-Honshu
Minatogawa (UMS)	?14kya	Pleistocene-type Homo, Jomon-type Homo	Japan, Okinawa

Appendix F

Succession of lithic technologies in Upper Palaeolithic Japan

Nowhere has the variety of Late Palaeolithic assemblages been researched more intensively than in Japan (see Figure 4.3). As elsewhere in East Asia, the ‘characteristic’ tool types of each phase are accompanied by myriad other tools both large and small: choppers, axes, various scrapers, burins, awls, etc. In the terminal Pleistocene, bifacial flaking came to be used for small tools like laurel-leaf shaped points as well as axes. Fine retouch was applied to tools according to mental templates of specific shapes – such as stemmed arrowheads and tanged-spoon scrapers. Lithic assemblages varied not only temporally but regionally, with rock sources and technological distinctions well documented. Now all that remains is to explain this

variability in conjunction with peoples’ changing habits brought about by movement of peoples, by dramatic shifts in climate and concomitant redistributions of flora and fauna, and by the development of regional communities with both traditions and creative inventions.

- compiled by MORISAKI Kazuki in collaboration with author (primary source: Morisaki 2012), with additional data from Takakura 2012, Abe 2006, Kimura 2006, Kudo 2006
- some abbreviations: lg = large; LGM = Late Glacial Maximum; AT = Aira-Tanzawa
- bold type indicates predominant artefact type

	Kyushu	Setouchi/Kinki	Kanto	Tohoku/Hokuriku	Hokkaido
Early Upper Palaeolithic					
	trapezoids, edge-ground axes, denticulate points	trapezoids, side-blow flakes, edge-ground axes	Layer X–IX lower: trapezoids, blades (basal retouched points) , edge-ground axes	trapezoids, blades (basal retouched points), edge-ground axes	30.6–27.4 cal.kya small irregular flake tools, amorphous cores
	trapezoids, blades(backed points)	trapezoids, side-blow flakes (basal retouched points), edge-ground axes	Layer IX upper–VII: blades (backed points) , trapezoids, edge-ground axes	blades (basal retouched points), trapezoids, edge-ground axes	
disappearance of trapezoids and edge-ground axes					
Late Upper Palaeolithic ca. 28 cal.kya:					
	Southwest Flake industries		Northeast Blade industries		
AT-tephra 29–27 cal.kya	various flake technologies (backed points), various scrapers	side-blow flakes (backed points), various scrapers	Layer VI: blade & flake industry (blade & flake backed points) , curated blade-cores, blades, end scrapers	blade tool industry (basal retouched points) , curated blade-cores, blades, burins, end scrapers	
LGM start: regionalization of technologies, formation of regionalized traditions & spread of Kou industry					

	blade & flake industry: lg stemmed points, trapezoids, various scrapers; pebble clusters; regionalization	Kou industry (lg standardized side-blow flakes (Kou points)), various scrapers	Layer V lower: blade & flake industry (lg basal retouched blade points and flake backed points), various scrapers	lg standardized blades (basal retouched points), end scrapers, side scrapers, burins	25-18 RCYBP knife-tool microblades
23–22 RCYBP	<u>above P17 tephra</u> flake industry (large backed flake points, Kou-like points , denticulate points, various scrapers); pebble clusters	Kou industry (lg standardized side-blow flakes (Kou points)) , various scrapers	Layer V upper: flake industry (lg backed/ basal retouched points, Kou-like points), various scrapers; pebble clusters	lg blades (basal retouched points), Kou-like points , end scrapers, side scrapers	23.3–22.4 microblades, wedge-shaped cores
ca. 21 RCYBP	<u>above P15 tephra</u> lg denticulate points, stemmed flakes, various scrapers; pebble clusters	lg side-blow flakes (Kou points) , lg denticulate points, various scrapers; pebble clusters	Layer IV lower: flake industry (backed points), lg denticulate points, various scrapers; pebble clusters	regionalized traditions: narrow standardized pointed blades/ backed points/ wide-flake industry	
	small blade industry (basal retouched points/ backed points); pebble clusters	small side-blow flakes (backed points); pebble clusters	Layer IV upper: small blade industry (backed points), side scrapers; pebble clusters		blade tools
	small blades, small flakes, microliths				
19 cal. kya	end of LGM				
	17.3 cal.kya microblades		17–16 cal.kya plain pottery	17–16 cal.kya plain pottery	
16–15 RCYBP	<u>above Kr-Kb tephra</u> :		16.5–13 RCYBP linear-relief pottery, bifacial laurel-leaf point industry		early microblades, end & side scrapers, graters made on blades from bifacial cores
	14.2 cal.kya Fukui Cave microblades, pottery		13–11.5 cal.kya nail-impressed/ cord-marked pottery	15.5 cal.kya pottery at Odai Yamamoto	late microblades, bifacial foliate points, bifacial stemmed points, flake adzes, bifacial axes; blades from prismatic cores
12–11 RCYBP	<u>above P14 tephra</u> : various microcores				13.2 cal.kya end of Hokkaido microliths; tanged points

Appendix G

Major domestic species in East Asia

G.1 Domestication of species

Traditionally, morphological criteria – changes in size and shape of bones and grains – and faunal ‘age at death’ profiling have been employed for distinguishing wild from domestic. These are now supplemented by tools such as DNA, phytolith analysis, biomolecular analysis, scanning electron microscopy (SEM), and stable isotope analysis.

Millets

Two species of millet, foxtail millet (*Setaria italica*) and common (broomcorn) millet (*Panicum miliaceum*) are often found together in northern Mainland sites in varying proportions. Domestication processes must have begun around the Pleistocene/Holocene boundary, as starch grains of foxtail millet have been recovered from stone grinding slabs and carbonized remains at the Nanzhuangtou and Donghulin sites dating as early as 9000 BC.¹ Investigators cite the drought-resistant qualities of millet as one of the factors that might have contributed to its early domestication and intensive use, especially given that the period *ca.* 11,000–8,700 cal. BP was cold and dry.²

Domestication processes for both millets are obscure. The wild ancestor of foxtail millet is *Setaria italica* subsp. *viridis* (green foxtail grass or green bristlegrass)³, while the ancestral form of common (broomcorn) millet is unknown. Common millet grains found in eastern Inner Mongolia (*ca.* 6000 BC)⁴ are allegedly the size and shape of wild types, and desert margins and steppe environments are thought to be one locus of possible domestication. Genetic variation in foxtail millet suggests three different domestication episodes: one in Central Asia and possibly two in north-northwestern China

near deserts or in steppe environments.⁵ The two species have several varieties with different environmental tolerances, ripening periods, and so forth, making them extremely flexible crops.

A glutinous variety was additionally available and ultimately used to make millet wine, as later documented in the Shang Dynasty oracle bones; but archaeological identification of glutinous grains is difficult. Almost all common millet landraces in Japan are glutinous and thought to have arrived via two different routes: through northeastern China and the Russian Maritime Region to northern Japan, and from the Korean Peninsula into southwestern Japan.⁶

Rice

There is only one domestic species of rice in East Asia, *Oryza sativa*, but among the two subspecies of *O. sativa* (*indica* and *japonica*) are thousands of varieties with different properties: dry, wet, glutinous, non-glutinous, colored, aromatic, long-grained, short-grained, etc. These were cultivated in different areas for different reasons, but the development of cool-climate *japonica* – allowing it to be cultivated farther north – was the second most important advance after domestication itself.

The domestication of rice is an area of huge research controversy which is still in major flux. Assumptions differ, there are inherent contradictions in research results, and researchers disagree with each other. It is thus difficult to summarize the trends as there is no consensus. The major issues for rice involve the following:

- Definition of species: Genetic research has previously shown that the two major variations of domestic rice (*Oryza sativa indica* and *O. sativa japonica*) are distinct genetic lineages that developed from different wild ancestors: *indica*

from annual *Oryza nivara* thriving in “seasonal monsoon puddles”, and *japonica* (with its offshoot *javanica*) from perennial *Oryza rufipogon* living in marshy environments.⁷ However, the most recent genome project modifies this view, with *japonica* developing from *O. rufipogon*, while *indica* was the result of *japonica* cross-breeding with local wild rices.⁸ *O. sativa*, *O. rufipogon* and *O. nivara* can all cross-breed, violating the definition of species, and there is sentiment that rice is “over-classified”.⁹ Chinese scholars, in fact, do not recognize the difference between *nivara* and *rufipogon*, lumping them together with “spontanea” (their cross-breeds with *O. sativa*) as “common wild rice”.¹⁰

- Geographical origins:¹¹ *Japonica* has previously been understood to have developed in the Yangzi Basin, most likely in several domestication events, and in 2010 it was stated that “South China had nothing to do with the origin of rice agriculture”.¹² However, the recent genome project names the middle Pearl River Basin in South China as the locus of *japonica* domestication.¹³ No evidence for *indica* has been found in the Chinese Neolithic,¹⁴ and it apparently did not become ‘significant’ on the China Mainland until 1000 AD.¹⁵
- Distinguishing wild from domestic: This has traditionally depended on the presence of a non-brittle rachis, which allows the seed to stay on the plant through harvesting and then requires threshing to remove the seed. Also significant is the presence of awns and awn hairs, the latter showing a reduction in length during domestication; awn hairs help seeds burrow into the soil, unnecessary when sown and cultivated, though some wild species do not have awns.
- Seed size and shape: There is tremendous variation of size and shape within the *indica* and *japonica* varieties, though the former is usually referred to as ‘long-grain’ and the latter ‘short-grain’. Domestic and wild rice cannot be distinguished by grain size but by morphological differences: the shift from smooth rachis attachments (wild) to smooth (domestic).¹⁶
- Cultural practices: Morphological change is proposed as enhanced by the growing of rice

in paddy fields, isolating the stalks from cross-pollinating with wild *Oryza*.¹⁷ Sickles were adopted from the northern millet cultures as late as 3300 BC, allowing for the further selection and harvesting of plants with useful characteristics. Non-biological evidence of intentional planting and management as opposed to ‘harvesting in the wild’ is difficult to come by.

Pulses

Wild soybean (*Glycine max* subsp. *soja*) grows throughout East Asia and underwent multiple instances of domestication into *Glycine max* subsp. *max*. However, these forms can interbreed (as with domestic and wild rice above), and many ‘landraces’ exist which provide much variability across the landscape. Studies of soybean seeds from archaeological sites focus on seed size. Length and width measurements reveal complicated regional patterns, but in general, large-seed soybeans are considered to be domesticates.¹⁸ Small-seed soybean is known from the northern China Mainland at 9000–8600 cal. BP and from the Japanese Islands at 7000 cal. BP; large-seed soybean appeared by the Middle Jomon at 5000 cal. BP and Chulmun at 3000 cal.BP.¹⁹ Both domesticated and wild soybean occur in Erlitou and Shang contexts on the Mainland. The current hypothesis states that soybean was domesticated independently in all of these regions. Intermediate-size azuki beans (*Vigna angularis*) have also been excavated from around 3000 BP.²⁰

Pigs

It is said that of all domestic animals, pigs are the most difficult to distinguish between wild and domestic. All wild boar and domestic pigs belong to the same species, *Sus scrofa*, but entail 15 different subspecies.²¹ New research involves several different analytical methods (metrics, age of death profiling, biogeography, LEH, stable isotopes in bone, tooth wear, and genetics), with the best results using Pearson’s coefficient of variation showing that two populations (wild and domestic) were present but still could not be distinguished by proportionality.²² Nevertheless, an elevated level of LEH (linear enamel hypoplasia) on the teeth of archaeological

Sus samples from China and Japan suggest they may have been stressed by proximate dealings with humans.²³

Pig bones appear at many early sites such as Kuahuqiao and Cishan, but only some of the bones and teeth show morphological changes, suggesting that a few were selected to raise for feasting perhaps while the wild ones were still hunted.²⁴ The domestic pigs at Cishan were identified using tooth measurements, age profiles, and subsistence context and are dated to 8000 BP. But their role in the Cishan subsistence system is characterized as 'advanced initial exploitation' rather than full exploitation.²⁵ Many other sites in the Yellow/Wei river valleys fall into this category, while full reliance on domestic pigs as a meat resource developed around 6000 BP.²⁶ Bone isotope studies indicate that pigs were eating cultigens, probably millet.²⁷

Haplotype studies indicate that there is continuity between ancient and modern pigs in the Yangzi basin;²⁸ this finding has been generalized to postulate that most pig domestication occurred within local groupings of wild boar in multiple domestication instances. Moreover, researchers noted that wild and domestic *Sus* co-exist, implying that no effort was made to incorporate further wild females into the domestic breeding population and female pigs were not allowed to run feral. DNA structures from the wild and domestic groups are distinct from each other, even though these subspecies can interbreed.

Wild boar are indigenous to the Japanese Islands (except Hokkaido) from the Pleistocene, but those in Okinawa are distinguished from the rest by mtDNA, body size and teeth morphology.²⁹ Intentional introduction of wild boar to Izu Island in Initial Jomon and to Hokkaido in Early Jomon indicates at least some human interference with wild populations.³⁰ Bone isotope analyses of a limited sample of *Sus scrofa* in Okinawa reveals two types of feeding patterns in Early Jomon that may reflect extension of human control.³¹ These are the natural consumption of indigenous wild plants vs. foodstuffs of animal derivation, which concurs with shellfish exploitation. Middle Jomon joint burials of human infant and baby boar suggest considerable interaction of human and wild boar populations,³² but the domestic pig was most likely imported from China during

the spread of agriculture at the beginning of the Yayoi period, as attested in Okinawa, where the ingestion of cultigens such as millet appears from Early Yayoi.

Water buffalo

Water buffalo are found at several early Neolithic sites but only in small numbers. It is surmised that early finds were hunted and that the buffalo was only domesticated to be a draft animal once plowing of fields commenced, attested by stone plows in the Late Neolithic.³³ So-called stone plows (indirect evidence of domestication) have also been found in the northeast, at sites along the lower Manchurian Basin and Yalu River and, surprisingly, in the central Korean Peninsula.³⁴ However, DNA testing of modern and ancient water buffalo in northern China indicate that the former (modern domesticate *Bubalus bubalus*) did not derive from the latter (ancient wild *Bubalus mephistopheles*).³⁵ Modern Chinese water buffalo are all swamp buffalo (as opposed to the different river buffalo of South Asia); examples from south of the Yellow River exhibit two lineages: dominant A lineage, which were fully domesticated, and subordinate B lineage, which seem to incorporate more wild buffalo genes.³⁶

Cattle

Wild auroch (*Bos primigenius*) was domesticated in the Near Eastern Neolithic as the domestic bovine, *Bos taurus*, but it is possible that other domestication events also took place. The most common haplogroup T1, representing the major domestication event, existed by 12.9±5.8kya, and the newly recognized sub-haplogroup T1f, which includes breeds from China, Korea and Japan, diverged at 11.4±2.4kya.³⁷ Cattle bones have been recovered in China Mainland Neolithic sites and from Chulmun and Jomon shellmounds.³⁸

Chickens

DNA studies indicate all domestic chickens derive from the wild red junglefowl (*Gallus gallus*), with contributions from other colored junglefowl.³⁹ Multiple and independent domestication events are known from South and Southeast Asia and

southern China.⁴⁰ The fowl bones from Cishan measure between the wild and the modern domestic chicken, indicating further Holocene development.⁴¹ Although chickens were known from Yayoi Japan, they were treated as a ritual bird and not actually eaten until the 19th century.

Dogs

Dogs were domesticated from wolf populations, with independent domestication processes underway ca. 32–36,000 cal. BP as evidenced in Belgium and Siberia; however, these processes were truncated by the Late Glacial Maximum, and Holocene dog lineages emerged around 14–15,000 years ago.⁴² Opinion is divided whether there were multiple instances of modern dog domestication, specifically in Africa and Southeast Asia/southern China.⁴³ Genome research indicates that domestic dogs have an ability to digest starches – not present to a great extent in wolves.⁴⁴ So whatever their starting date of commensal relationships with humans, their diet and genome was greatly affected by crop production. The earliest dog remains in China have been recovered from Nanzhuangtou at ca. 9000 BC, and dogs from Kamikuroiwa Cave in Japan have now been dated to Initial/Early Jomon transition ca. 7400–7200 cal.BC.⁴⁵ It should not be overlooked that eating dog is a modern tradition in China and Korea and has been documented for medieval Japan, so dog husbandry for food might have occurred earlier.

G.2 Domesticates from the west

Horses

The situation with horses on the Mainland is complicated by the presence of the indigenous Przewalskyi horse, which was heavily hunted in the Palaeolithic. Only a few Holocene sites prior to 2000 BC have yielded horse bones, and these occur in so few numbers that it is difficult to assess their domesticated status.⁴⁶ The sudden appearance of horse-drawn chariots in Late Shang stands in great contrast, facilitated by contacts with northern pastoral peoples. Thus, on the northern margins of the Mainland we should expect to see more evidence of horses after 3500 BC before they appeared so spectacularly in Late Shang.

Sheep and goats

Several kinds of wild sheep live throughout Eurasia (see CKJ fig. 69), but Mainland domestic sheep from archaeological sites can be divided into two DNA lineages, a minor one (B) that has Near Eastern and wild antecedents, and a major one (A) comprising the majority of sheep remains both ancient and modern. The origin of lineage A is as yet unknown, but B might represent a link to the steppes.⁴⁷ Sheep appeared before goats at the beginning of the 2m BC in the Qijia culture. It is extremely difficult to distinguish sheep bones from goat bones, giving rise to the ‘sheep/goat’ nomenclature.

Cattle

Wild aurochs populated the steppe regions, but domestic cattle on the Mainland derive from two domestication processes. The northern domestics were taurine cattle (*Bos taurus*), different from the southern humped zebu cattle (*Bos indicus*) that were brought into the southwestern mainland from South Asia. These two breeds produced hybrids in the central Mainland after 1500 BC, forming the historic stock of that region.⁴⁸ The 3m BC seems the time when northern domestic cattle bones begin to appear in the Late Neolithic cultures of the northwestern Mainland,⁴⁹ even though aurochs were still hunted into the 2m BC.⁵⁰

Western grains

Barley, rye, oats and breadwheat (*Triticum aestivum*) were all introduced from the west.⁵¹ Tibet currently gives us the earliest dates for barley and oats (3400–3000 BC), then barley, rye and wheat in the Gansu Corridor (3000–2500 BC).⁵² Thereafter, wheat was known from the Gansu Corridor through the Wei River valley to the Shandong Peninsula, though it did not become common in the Central Plains region until the 1m BC.⁵³ New research demonstrates, in fact, that wheat was a staple crop in the Gansu Corridor after 1800 BC, but the millet cultures of the Wei and lower Yellow rivers resisted wheat cropping for about a millennium before capitulating.⁵⁴

Appendix H

Household and sector structure and production data from two Mainland Neolithic sites: Jiangzhai and Fushanzhuang

Detailed studies such as these are increasingly informing us on specific site structures, helping to avoid broad-brush generalizations.

H.1 Jiangzhai

- compiled from Peterson & Shelach 2012

Grayed cells hold the highest data extremes in each category. These are rough calculations and mere suggestions of potential for exchange within and among sectors.

- The Northern sector had one of the highest levels of agricultural surplus paired with two sheds for storage of manure/night soil; so despite its low numbers of house and storage pits, it could be that night soil was used to increase field yields. It possibly had access to the kiln outside the ditch to the northeast plus a high level of ceramics for food service and presentation.
- The Eastern sector had the highest levels of actual excavated area, floor area, population, storage pits and the largest house. Despite having the largest number of excavated storage pits and highest actual storage capacity, the sector had the lowest level of digging/hoeing/plowing artifacts and fewer houses with agricultural surplus. However, it had the second highest density of faunal remains and the highest numbers of stone, bone/antler, clay (excepting pottery) and copper artifacts. The fact that hunting is present together with the bone/antler remains suggests that the lowered agricultural surplus might have been made up with game.
- The Southern sector is the most different

of all, with most households in agricultural deficit and agricultural tools at low or medium levels. However, it had the highest density of faunal remains and the highest level of harvesting/butchery/leather-working tools. Given these data, the second animal pen probably belonged to this sector.

- The Western sector had the highest projections of household floor area, population and storage capacity; these correlated with highest absolute numbers of artifacts relating to agriculture plus one of the highest projected storage capacities and numbers of houses with calculated household agricultural surplus. This sector had one of the two kilns located within the ditched village and access to four beyond the ditch to the southwest.
- The Northwestern sector was undistinguished except for having an animal pen and the highest numbers of ceramics for food service and presentation.

Taken together, the Northern and Northwestern sectors seem complementary in several senses. Animals kept in the Northwestern pen could have supplied manure to the Northern night soil sheds. The surplus agricultural production of the Northern sector could have been shared with the Northwestern sector, which had one of the lowest levels of surplus. Both sectors are noted for the large numbers of serving ceramics; those from the Northwestern sector could have been fired in the Northern kiln or the one nearby outside the ditch.

The Southern and Western sectors also seem somewhat complementary. West has one of the highest agricultural surpluses while South

has the lowest. West has one ceramic kiln, but four are accessible outside South and West, and South allegedly had a pottery workshop. South, however, is unparalleled in having an animal pen

plus the highest level of bone/antler densities and the highest number (not shown below) of bone awls, interpreted by the authors as used for leather-working.

Early Banpo phase at Jiangzhai	Northern sector	Eastern sector	Southern sector	Western sector	Northwestern sector	totals
area excavated (ha) (projected)	0.25 (21%) (0.36, 23%)	0.37 (33%) (0.37, 24%)	0.19 (16%) (0.26, 16%)	0.18 (16%) (0.32, 21%)	0.15 (13%) (0.26, 17%)	1.14ha
houses excavated (projected)	11 (16)	18 (18)	12 (17)	11 (21)	8 (15)	60 excav. houses
house floor area m ² (projected)	175 (254)	207 (207)	147 (208)	167 (318.6)	68 (126.9)	763m ²
population (projected)	66 (94)	84 (84)	49 (68)	62 (111)	35 (61)	296 (419)
large house	87m ²	126m ²	52m ²	74m ²	70m ²	408m ²
storage pits (projected)	27 (39)	48 (48)	14 (19)	12 (23)	19 (33)	121 (162)
storage capacity m ³ (projected)	89 (128)	90 (90)	28 (37)	59 (104)	81 (100)	346 (459)
households w/ agricultural surplus	4/11=36%	6/18=33%	1/12=8%	4/11=36%	2/8=25%	17 houses w/ surplus
households w/ agricultural deficit	7/11=64%	12/18=67%	11/12=92%	7/11=64%	6/8=75%	43 houses w/ deficit
animal pens			most likely	less likely	yes	2 sectors?
fauna low/med/high m ²	334/103/0	877/148/0	866/28/199	351/0/6	345/0/51	
#bones: low=<1 bone/m ² , med=1–2, high=2–4	334+(2x103)=540	877+(2x148)=1173	866+(2x28)+(4x199)= 1720	351+(2x6)=367	345+(4x51)=549	ca. 4349 bones
nightsoil sheds	2	0	0	0	0	2 nightsoil sheds
pottery kilns	0	1	0	1	0	7 pottery kilns
kilns beyond ditch	1 beyond ditch to the NE		4 beyond ditch to the SW		0	
ceramic workshop			yes?			1? ceramic workshop
stone artifacts	33	43	15	33	24	148 stone artifacts
bone/antler artifacts	42	75	34	28	23	202bone/antler
clay artifacts	132	142	98	63	96	531 clay artifacts
shell artifacts	2	0	2	1	2	7 shell artifacts
copper artifacts	0	1	0	0	0	1 copper artifact

Early Banpo phase at Jiangzhai	Northern sector	Eastern sector	Southern sector	Western sector	Northwestern sector	totals
field clearance/ woodworking	medium	medium	low	HIGH	medium	
digging/hoeing/ plowing	medium	low	medium	HIGH	medium	
plant processing	medium	medium	low	HIGH	medium	
harvesting/butchery /leather-working	high	higher	HIGHEST	high	higher	
hunting	medium	medium	low	low	low	
fishing	0	low	low	low	0	
cooking/storage						
food service/ presentation	HIGH	medium	medium	medium	HIGH	
tool manufacture/ maintenance	low	low	lower	0	0	
spinning/weaving/ sewing	low	low	medium	low	medium	
personal adornment	medium	medium	low	medium	low	
ritual paraphernalia	0	low	0	0	0	

H.2 Fushanzhuang

- compiled from Peterson 2006

Houses:

- Households with high proportions of fine-paste ceramics (well finished, relatively undecorated)
- Households with high proportions of coarse pottery decorated (appliqués, incised/painted designs)
- Agricultural production: high proportions of stone shovels, hoes, plows, axes, adzes, grinding slabs and rollers
- Initial stages of stone tool and other artifact production: high proportions of flakes, flaking debris, cores, awls, gravers, and projectile points
- Tool finishing: high proportions of biface blanks, hammerstones, abraders, scraping and chopping tools

Spatial arrangement:

- Rock and rubble mounds mark corners of open central plaza
- Coarse-pottery households mostly near central plaza

- Some households near plaza had agricultural tools
- Fine-pottery households far from plaza in low-lying western area; also had initial and finishing stone tools

Burials:

- M1 Pit burial: non-mounded, high status, disturbed
- ordinary graves: pits lined with stone slabs (cists), small numbers of stone tools, decorated pottery, ornaments
- large elaborate jades usually found in burial mounds and multi-stepped stone slab pit-burials
- small jade objects interred in more elaborate pit burials of lower-status individuals

Mounds:

- 8 mounds Z1-Z8; Z2 being an 'altar', Z8 dating later; 6 Hongshan burial mounds of earth and basalt boulders
- 3 smallest mounds (Z5, Z6, Z7) had few ceramics

- Large (Z1, Z3, Z4) = 2–3m ht, 10–20m dm, basalt boulders; ceramic cylinder at Z1, Z3

Ceramic descriptions (table below):

The table below merely categorizes statements about pottery found at Fushanzhuang under the headings as used by Peterson (2006). Apparently, decorated pottery in his terms includes the

decorations of textured pots but excludes painted designs.

- Each cell begins with the relevant page number(s) in Peterson 2006 (e.g. p5), followed by 'f' (e.g. f5) when a figure exists.
- dec/undec = decorated/undecorated, HS = Hongshan, Z = zigzag except when identifying a feature (e.g. Z6)

decorated (543 sherds = 3.4%)	textured pottery	coarse	fine paste	burnished	painted
p5 dec pots in ordinary graves	p182, f5 Z-dec	p156 undec sherds at Z6	p46 as attribute	p46 in/out/both	p10 painted cylinders
p13 dec/finely made = higher status	p188, f9 <i>duiwen</i> (stippling)		p152, f3 fine paste undec sherds from Z2 altar	p156 sherds in Z7	p156 sherds Z7
p51 Early = high % of undec!	p42 Early HS, coarse: Z, <i>duiwen</i> , nail-impressed		p158 fine burnished pots, specialist manufacture		
p54 very high % undec	p46 +parallel lines, braided		p164 high proportion = wealthy but not high status		
p55 no diff in dec among households	p49 Z-dec no chronological pattern				
p159 96.6% undec; dec = high status or wealthy					
p164 dec = high status					

Appendix I

Liangzhu burial data

- compiled from Qin, L. 2013

I.1 Early Liangzhu burials

- social classes distinguished first by burial facility, then by wealth
- * ceramic set = 3–4 vessels: *ding, dou, guan, pen*

Early Liangzhu	high status	middle status	low status
facilities	on platform		around each house
northern burials	Luodun, Zhaolingshan		Pu'anqiao, Longnan, Shaoqingshan
no. burials	10–30		
no. objects	40, divided equally among:		10
• pottery	ca. 13		several
• jades	ca. 13		2 ornaments
• stone axes	ca. 13		1
southern burials	Yaoshan	Pu'anqiao Wujiabu	Miaoqian
facilities	?gendered rows of graves on platform		
ceramic set*	+		
stone	ax in male burials		
jades	various	increase over time	
• male (S row)	yue, cong, other jades		
• female (N row)	huang, plate-like ornament(s)		

I.2 Middle Liangzhu burials

*jade set = *cong*, *bi*, *yue* (manufactured at and exported from Liangzhu site complex)

Middle Liangzhu	high status	middle status	low status
Liangzhu site complex	Yaoshan, Fanshan, Huiguanshan, several locs. in Liangzhu site complex [burials?]	Boyishan, Xiaozhushan, Huangnikou, Qianshan. Shenjiashan	Shangkoushan, Miaoqian
	platforms or hilltops	?	?
no. of burials	20–30	20–30	20–30
no. of objects		30–40	10–20
ceramic set	+	+	+
jades	abundant; fork- & cone-shaped objects, comb	several	ornaments
stone axes	abundant	1	+ (no adzes)
jade set*	<i>cong</i> , <i>yue</i> , <i>bi</i>	occasional <i>bi</i>	none
other regions (site or M = burial no.)	Gaochengdun Cem., Zhaolingshan M77, Shaoqingshan M1	Xujiabang, Zhangjiabang	Pingqiudun
facility	platform	no platform but grave clusters	
no. of graves	20 on one platform	20 in each cluster	20
no. of objects	40–50 objects	10–20	<10
jade set*	in 50% of burials but no fork- or cone-shaped objects; comb	one piece in 1–2 burials	none
pottery	? no info	set	+
stone	? no info	stone ax	tools, adzes
jade	? no info	beads, ornaments	none

Appendix J

Evidence of early metallurgical production

- compiled from Linduff 2008, Liu & Chen 2012, Underhill 2013, Shelach 2009

area/site	culture	period	production evidence
NORTHERN ZONE			
Northwest			
Majiayao site			copper slag
Huangniang Niangtai*	Qijia	2300–1500	stone molds, slag
North (Ordos)			
	Miaodigou	2500–2300	+
	Longshan	2300–1900	+
Northeast			
Xiquegou	Lower Xiajiadian	2000–1400	copper mine
Dongshanzui	Lower XJD	2000–1400	ceramic composite mold
Kanjiatun	Lower XJD	2000–1400	bivalve stone mold
Sifendi	Lower XJD	2000–1400	composite molds
Miaotaizi	Lower XJD?		crucible fragments, copper slag
Xiaobeishan	Lower XJD?		crucible fragments, copper slag
FEN RIVER Drainage			
Yuncheng Basin		1900–1600	mining pits, wells, mining tools, refined copper ores
Yujialing	Erlitou?	2300–1800, 1900–1600	copper smelting residue
Shishulin	Erlitou?	1800–1600	copper smelting/refining residue
Xiwubi	Erlitou?	1500–1350	copper smelting/refining residue
Zhoujiazhuang	Erlitou?	2300–1900	copper residue
CENTRAL PLAIN			
Meishan	Wangwan III	2600–1900	crucibles, copper debris
Erlitou		1850–1550	stone molds, piece-mold casting

* often spelled as one word, Huangniangniangtai

Appendix K

Features of Northern Zone cultures in the Zhou period

- compiled from Yang, J. 2012; Pak, Y. 1995
- all objects are of bronze unless otherwise stated
- abbreviations: WZhou = Western Zhou; S&A = Spring & Autumn period; WS = Warring States period; sh- = shaped

K.1 Types I and II material cultures

	Type I	Type II (West)	Type II (North) [Ordos]
date	mid-late Early Zhou (WZhou); mid-S&A-WS	mid-Middle Zhou (S&A) into mainly Late Zhou (WS)	mid-Middle Zhou (S&A) into mainly Late Zhou (WS)
subsistence	mixed economy	nomadic pastoralism	nomadic pastoralism
animal sacrifices	dog, cattle; horse = high rank	horse, sheep; mainly in catacomb burials	horse, sheep
relations	close to states	close to steppe	close to states
Zhou artifacts		<i>ge</i> halberds	Zhao/Qin state manufacture of elite ornaments; bronze mirrors, silk, lacquerware
distribution	from Beijing to Wei R.	Wei R. to western bend of Yellow R.	Inner Mongolia/Ordos
burials	stone burial furniture; royal tombs w/ 3-D animal bronzes, Northern-type bronzes	vertical pit, catacomb burials	vertical pit, some with niches/ledges; head to north in Ordos, head to east farther north
accessories	tiger belt plaques; gold wire earrings	ring-buckle with hook; bronze 'buttons'; plaques with S-designs; animal plaques	long ladle; mirror with deer emblem; gold/turquoise raptor cap ornament; ring-buckle with hook and tab; bronze 'buttons'; S-plaques; animal plaques; head ornaments; rings; necklaces; buttons; mirrors
weapons	bronze swords with animal-mask guards; knives	antennae dagger; ringed-hilt sword; halberds; tubular-socketed ax; ring-pommel dagger; long shaft-socketed spearheads	ring-pommel knife; tanged single-edged knife/sword; iron double-edged short sword; antennae dagger; tubular-socketed ax; halberds; arrowheads; socketed spearheads; iron swords
tools	scissors; cutters	socketed ax; pickax	pickax (+iron pickax?); awls; drills; socketed axes
vessels	bronze <i>fu</i> cauldrons; double-handled <i>guan</i> jars; tripods; <i>hu</i> jars w/ cording; chains		pedestaled handled cauldrons
horse/chariot	bone horse bits; snaffle bits	snaffle bits; bronze disks/ plaques; 'buttons'; bells; ferrules?; caps (some in animal shapes); sheep figurines	bosses? snaffle bits; cheek pieces; chanfrons; animal caps; axle cups; wheel hubs; animal-head pole caps

K.2 Upper Xiajiadian and the Northeast (Manchurian Basin)

	Upper Xiajiadian	Northeastern Complex
date	1m BC	1m BC
subsistence	pastoral/agricultural	mixed economy
animal sacrifices		pigs; few cattle, no horses until late
relations	interaction with Yan?	far from states
Zhou artifacts	iron	halberd; late iron
distribution	Liaoxi = former Hongshan region	Manchurian Basin
burials		pits; cists; dolmens
accessories	multi-looped mirrors; plaques; plates; belt hooks	geometric mirrors; rings; gold wire earrings; peapod ornaments; animal plaques & figures
weapons	helmets; armor; halberds; spearheads; pickaxes; arrowheads; double-edged swords with integral hilt; tanged <i>pipa</i> -shaped swords; scabbards	tanged <i>pipa</i> -shaped sword & scabbard; stone pommels; socketed spearheads; arrowheads; antennae daggers
tools	knives; awls; chisels; adzes	socketed ax with flared blade; awls; knives; chisel; fish hooks; iron axes
vessels	bronze tripods; bronze pedestaled bowls; lidded jar	
horse/ chariot	bits; cheek pieces; bells; chanfrons; chariot-wheel hubs	horse trappings: buttons, cheek pieces, rein rings; buckles, bells

K.3 Northern Frontier art, divided into Early (9–4c BC) and Late (after 4c BC)

- condensed from Bunker, Watt & Sun 2002
- abbreviations: acces = accessories; dec'n = decoration; reprod. = reproduction

	NW China	NW China	NW China	west of Taihang Mts.	Manchurian Basin
EARLY	9–4c BC			9–3c BC	9–3c BC
	S Ningxia SE Gansu	Ordos	Inner Mongolia N Shanxi	N Hebei	
artifacts	yoke covers; acces; belt buckles esp. mirror imaged; tinned plaques w/ animal predation; carved bone	yoke covers; 3-D animals on funerary vehicles	short swords; belt plaques; hook buckles	knives; shorter swords w/ ridge; riding bridles; snaffle bits; acces; tools; funeral canopy dec'n; gendered pectorals; bronze finials	knives; short swords; helmets; horse/chariot gear; acces; belt dec'n
diagnostic object styles					jingles; blade/cast hilts
diagnostic designs	camels, animal combat; open- mouthed animals	recumbent animals	animal predation; eagle heads	stylized zoomorphs	hunting scenes; realistic images; fertility/reprod.; speedy animals
common styles among n. Frontier	coiled animals	N Hebei finials		local fauna	Scythian reindeer; native animals
derived style	Scythian harness fittings; more coiled animals in Crimea, Altai; Saka animal combat; Zhou raptors	Qin deer hooves	abstract zoomorph (Shangcunling)	Ch. interlaced dragons; Urals openwork hilt w/ animal head	
connections	Crimea, Altai, Minusinsk		Houma, Jin, Altai, S Siberia	Ulaanbaatar, Lake Baikal, Tuva, Urals	N Mongolia; E Siberia via Amur
subsistence	herder			hunting; fur-trapping	hunter
production	Qin manuf? (raised curls, pseudo-granulation, striations, superimposed zoomorphs)	local piece-moulds; Qin manuf?; plaque mass production		most piece-mould, some lost wax; Ch. manufac?	local foundries; most piece-mould, some lost wax
trade goods			Chinese belt hooks	fur & leather	orthodox Chinese
status	tinning	tinned bronze	belt ornaments; metal choice	hierarchy of metals; kinship totems	
form of wealth					trade goods

area				Horinger & Liangchen counties	Jindushan Mts, Yinshan Mts	
ethnicity					Shanrong	
burials				cemeteries	cemeteries	[isolated?]
sites				Maoqinggou, Fanjiayaozi, Guoxianyaozi		Nanshan'gen
illustr'n #s				31,	23, 25, 26, 27	17, 18, 22,
catalog #s	7, 8, 11, 12, 14, 15, 32, 33, 34, 62, 63, 92, 94, 95, 173, 175, 176	31, 35, 36, 37-39		31, 32, 35, 37, 89, 140, 148, 149	3, 24, 25, 54, 56, 90, 140, 141, 155-157, 139	2, 26, 28, 29, 44, 45, 46, 47, 49-50, 155, 158
LATE	4c onward	NW China 4-3c BC	Xiongnu 3-1c BC (6-4c BC too early)	Xianbei 0-3c AD		
metals		gold & silver; inlaid stones; silver replaces tinning from west: granulation, strip-twisted wire, loop-in-loop chains	precious metals, gilt bronze, colored cloth	gold, silver, bronze; hammered or cast; mercury or foil gilding		
production		granulation; Yan manuf at Xinzhuangtoug; lost wax; textile lost wax	in China or by Chinese craftspeople; mass prod.; arsenic alloy; lost wax; textile lost wax; piece-mould vessels			
motifs	earliest raptor head motifs	raptor images; Altai deer; west Omega-shaped buckles	real animals in landscapes; dragon	animals real & mythical; winged horses		
artifacts		no yoke covers; riding gear; headresses; necklaces; ear ornaments	bronze cauldron < west	belt ornament		
ethnicity	Yuezhi/Rouzhil/Ruzhi	hu (horseback archery); Linhu	western origin?; conquered Rouzhi	northern origin?		
connections		NW influx of mounted warriors thru Gansu Corridor into Ordos	fertility tree from Nr East; arsenic at Buryatia & Mongolia; dragon, W Siberia			
illustration numbers		36, 38, 39, 40, 41, 42, 43, 44	47, 48			
catalog numbers	67, 68, 72, 99, 103 (after Xiongnu conquest)	40, 94	17, 73, 75, 76, 77, 79-81, 101, 102, 105, 108, 112, 115, 116, 185	22, 85, 117, 152, 153, 154		

Appendix L

Analysis of burial goods in several tomb types during the Lelang period

- compiled from Pai, H.I. 2000: Appendix B

Analysis of tomb structure and contents in 225 burials throughout the Peninsula during the Lelang period revealed several trends.

- “Earthen pit graves” is an ambiguous category, as the coffins might have decayed away, leaving only the grave goods.
- Wooden coffins are highly likely to contain Han grave goods plus local pottery (36); fewer contain only Han goods (9), while those with mixed goods fall in between (14). The latter group include a named person.
- Wood-chamber tombs were slightly more likely to have all Han goods (31) than mixed Han and indigenous goods (28), but 22 of those 28 contained only local pottery and no other local goods. The six that did have a good mixture of Han and indigenous goods included two named persons, indicating the level of importance of those interred.
- Brick chamber tombs are more likely to contain only Han goods (15) than Han plus local pottery (3); a considerable number yielded no grave goods at all (9). So-called brick coffins (4) held no grave goods.
- Very few stone chamber tombs were included in this analysis; they are fairly equally divided between those with Han artifacts (4), with Han plus local pottery (3) and with no goods at all (4).
- Many urn burials (29) were recovered, none with grave goods.

grave goods \ burial facility	Han only	Han+indigenous	Han+indigenous pottery only	no goods	no data
earthen pit	3	3	6		
wooden coffin	9	1 (Fuzu huojun =Pujo Yegun) 13	36	5	3
wood chamber	29 1 (WANG Guang) 1 (WANG Xu)	1 (GAO Changxian) 1 (ZHOU Gu) 4	22		1
brick chamber	15		3	9	1
brick coffin				4	
stone chamber	4		3	4	
roof tiled cover	1				
unknown structure	1	5			1
urn burial				29	1

Endnotes

Chapter 1

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- ² Kohl & Fawcett 1995: 4.
- ³ Moon, C.R. 2012: 63.
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- ²¹ Data on foundations drawn from Shoda, S. 2008: 202, fig. 3; Jang, H. 2012: 208 fn. 4; Chung, S.S. 2012: 210.
- ²² See Chung, S.S. 2012: table 2.
- ²³ Chung, S.S. 2012.
- ²⁴ Bale 2008: 215.
- ²⁵ Shoda, S. 2008.
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- ²⁷ Kwon, O.Y. 2011: 88–89.
- ²⁸ Jang, H. 2012; Chung, S.S. 2012, Lee & Sohn 2012.
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- ³¹ CHA website at www.chf.or.kr
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- ³⁴ Wang, T. 2011: 47–48.
- ³⁵ An, J. 2012: 153.
- ³⁶ Murphy 1995: 49.
- ³⁷ Wang, T. 2011: 50.
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- ⁷ Barnes 2001: 32–36.
- ⁸ Kwon, O.Y. 2008: 73.
- ⁹ Kwon, O.Y. 2008: 77.
- ¹⁰ Barnes 2001: 26–27, 34–35; Byington 2003: 251, 253–259, 494–510.
- ¹¹ Kim, T. 2012: 26.
- ¹² Moon, C.R. 2012: 58, 61.
- ¹³ Kim, T. 2012: 22.
- ¹⁴ Ha & Mintz 1972.
- ¹⁵ Kim, B-m. 1998; Barnes 2001: 184–186; Park, H.W. 2012: 125; Lankton n.d.
- ¹⁶ Park, C.S. 2008: 126; his description of openwork as “pique-a-jour” [sic] is mistaken, as plique-à-jour is an enameling technique within wire frames.

- ¹⁷ Park, C.S. 2008: 131.
- ¹⁸ Murakami, Y. 1998: 34–36.
- ¹⁹ Barnes 2001: table 7.1.
- ²⁰ Moon, C.R. 2012: 71–72.
- ²¹ Park, C.S. 2008: 113; Moon, C.R. 2012: 64–70.
- ²² Kim, T. 2012: 18.
- ²³ Data from Park, C.S. 2008; Park, H.W. 2012.
- ²⁴ Park, H.W. 2012: 112.
- ²⁵ Park, H.W. 2012: 136.
- ²⁶ Park, H.W. 2012: 109.
- ²⁷ Park, C.S. 2008: 123.
- ²⁸ Mizoguchi, K. 2013a: 200.
- ²⁹ See Mizoguchi, K. 2013a: fig. 7.7.
- ³⁰ Mizoguchi, K. 2013a: 210.
- ³¹ Terasawa, K. 2000.
- ³² As described by Mizoguchi, K. 2013a: ch. 8.
- ³³ Tsunoda & Goodrich 1951: 13.
- ³⁴ See Shiraishi, T. 2004: 30–38.
- ³⁵ See Tsunoda & Goodrich 1951.
- ³⁶ Mizoguchi, K. 2013a: ch. 7.
- ³⁷ Barnes 2011, 2014.
- ³⁸ Tsunoda & Goodrich 1951.
- ³⁹ As first proposed by Kobayashi, Y. (1961).
- ⁴⁰ Barnes 2014.
- ⁴¹ Mizoguchi, K. 2013a (chapters 7, 8) and 2013b.
- ⁴² Barnes 2001: fig. 6.3, 2014: fig. 1.
- ⁴³ Kim, T. 2012: 40.
- ⁴⁴ Kim, T. 2012: 28.
- ⁴⁵ Lee, H.J. 2012.
- ⁴⁶ Choi, J. 2013.
- ⁴⁷ Choi, J. 2013: 95–96.
- ⁴⁸ Egami, N. 1964; Ledyard 1975; Kirkland 1981.
- ⁴⁹ Edwards 1983; Sahara, M. 1993.
- ⁵⁰ Best 2006: 276.
- ⁵¹ Shinsen Shojiroku, compiled 815 AD; Saeki, A. 2001.
- ⁵² See Barnes 1987.
- ⁵³ Obayashi, Taryo pers. comm. July 1992.
- ⁵⁴ Steinhardt 2002.
- ⁵⁵ See Wu, H. 2010: fig. 141.
- ⁵⁶ Nishitani, T. 2006: 113.
- ⁵⁷ Yeo, H.K. 2013: 201.
- ⁵⁸ Nishitani, T. 2006: 115.
- ⁵⁹ See Anazawa & Manome 1986.
- ⁶⁰ See Piggott 1989.
- ⁶¹ Farris 1992.

Chapter 15

- ¹ See Dien 2007: ix–x for an outline of the Three Kingdoms and Six Dynasties chronology and a list of the Sixteen States – their names,

- founders, ethnicities, capitals and successors.
- ² Wong, D.C. 2003: 80.
- ³ De la Vaisière 2004: 20–21.
- ⁴ Lewis 2009: 207.
- ⁵ Murphy 1995: 44.
- ⁶ Lewis 2009: 66.
- ⁷ Skaaf 2012: table 1.2.
- ⁸ Best 2002.
- ⁹ Lee, K.B. 1984: 58.
- ¹⁰ Barnes 1987.
- ¹¹ Miller 1974.
- ¹² Jeon, D-j. 2010: 43, 47.
- ¹³ Wong, D.C. 2003: 83.
- ¹⁴ Wong, D.C. 2003: 95.
- ¹⁵ The International Dunhuang Project [idp.bl.uk].
- ¹⁶ Dunhuang 1981.
- ¹⁷ Pen/Insular data from Grayson 1985: 18–23, 29.
- ¹⁸ Grayson 1985: 21.
- ¹⁹ Sonoda, K. 1993: 371.
- ²⁰ Kim, S-w. 2008.
- ²¹ Kidder 1972: ch. 7.
- ²² Totman 1989.
- ²³ Inoue, M. 1993.
- ²⁴ Brown 1993: 170.
- ²⁵ Cranston 1993: 457.
- ²⁶ Brown 1993: 32.
- ²⁷ Brown 1993: 32; Inoue, M. 1993: 196.
- ²⁸ Lewis 2009: 51; Benn 2002: x.
- ²⁹ See Farris 1982.
- ³⁰ See Piggott 1997: 143–144 for details of these changes.
- ³¹ Wang, T. 1999: 117.
- ³² Wang, T. 1999: 117; Dien 2007: 24–32.
- ³³ Wang, T. 1999: 118.
- ³⁴ Heng & Chen 2007.
- ³⁵ McBride 2010: 14.
- ³⁶ Hook 1982: 186; Lewis 2009: 60.
- ³⁷ Wechsler 1979: 174–175.
- ³⁸ Kidder 1972: 56–57.
- ³⁹ Nivison 1999: 746; Seth 2010: 52.
- ⁴⁰ Twitchett 1979: 24–25.
- ⁴¹ See Torao, T. 1993: 415–419.
- ⁴² Twitchett 1979: 25–26.
- ⁴³ Farris 1985: 69; 2009.
- ⁴⁴ Torao, T. 1993: 418–419.
- ⁴⁵ See Farris 1998: 218–219.
- ⁴⁶ Torao, T. 1993.
- ⁴⁷ Farris 1998: 202.
- ⁴⁸ Rawson 1982: 22–23.
- ⁴⁹ Zhang, F. 2011.
- ⁵⁰ Pearson 2013: ch. 6.
- ⁵¹ Kerr & Wood 2004: 146–147.
- ⁵² Kerr & Wood 2004: 498.
- ⁵³ Tsuboi & Tanaka 1991: 29.

- ⁵⁴ Quoted from Hamer & Hamer in Kerr & Wood 2004: 9.
⁵⁵ Kerr & Wood 2004: 146; see their attempts at definitions, pp. 9–11.
⁵⁶ Valenstein 1989: 72.
⁵⁷ Hobson 1915 [1976]: 78.
⁵⁸ Medley 1976: 115–116; 145–6.
⁵⁹ See the appendix in Pearson 2013; also Seyock 2006, 2007, 2008; Wilson 1997.

Chapter 16

- ¹ Iriye & Miller 1997: 5.
² Renfrew & Cherry 1986; Barnes 2007: ch.2.
³ Foy n.d.
⁴ Chan, C.S. 2004.
⁵ Senécal 2013.
⁶ Koo, S-W. 2013.
⁷ Lee, S.J. 2014.
⁸ Inagaki, S. 2013.
⁹ Watanabe, H. 2012.
¹⁰ McCreedy 2004.
¹¹ Data from ACKS 2014 [www.koreastudy.or.kr/main Eng/content.action?prog_id=EN010300&co_id=5].
¹² Grayson 2013: 181.
¹³ Mattis 2012.
¹⁴ Park, C.S. 2008: 144–145.
¹⁵ Kito, K. 1976: 224.
¹⁶ Moon, C.R.: 77.
¹⁷ Kito, K. 1976.
¹⁸ Grayson 1977; Moon, C.R. 2012: 55–57, 62.
¹⁹ Park, C.S. 2008: 144–145.
²⁰ Kwon, O.Y. 2008: 100–106.
²¹ Tsunoda & Goodrich 1951: 22.
²² Tsunoda & Goodrich 1951: 22.
²³ Yoon, H-t. 2004: 107.
²⁴ Byington 2002; Anon. 2009.
²⁵ ICOMOS 2004:25; World Heritage Committee 2004a, b.
²⁶ Kwon & Kim 2011: 92.
²⁷ Kwon & Kim 2011: 93.
²⁸ See Murphy 1995; Cuno 2008; Wang, A. 2012.
²⁹ UNESCO: www.unesco.org/eri/la/convention.=13039&language=E&order=alpha (accessed 3 Oct'14).
³⁰ UNESCO World Heritage: http://en.unesco.org/themes/world-heritage (accessed 3 Oct'14).
³¹ Shelach 2004: 20.
³² Choi, S. 1979; Hyun, P. 1994.
³³ Guo, D. 1995, 1999.
³⁴ Edwards 2003.
³⁵ Murata, S. 2011: 233.
³⁶ Murphy 1995: 172.
³⁷ Mair & Cheng 2013.

- ³⁸ An, J. 2013: 163.
³⁹ Wu, H. 2010: 12.
⁴⁰ Barnes 1990b.

Appendix A

- ¹ 2.58mya is the most recent redating of the Pleistocene boundary to conform to the Quaternary boundary (Gibbard *et al.* 2010).
² Bell & Walker 1992: 40.
³ See Walker 2005.
⁴ Reimer *et al.* 2009.
⁵ As calibrated with the IntCal09 online calibration program: free but requires registration and login at <https://c14.arch.ox.ac.uk/embed.php?File=>
⁶ Reimer *et al.* 2004; Reimer *et al.* 2009.
⁷ Reproduced with permission. Figure and description (paraphrased) from <http://c14.arch.ox.ac.uk/embed.php?File=calibration.html>

Appendix D

- ¹ Chang, K.C. 1986: 8.
² Wang, T. 2011: 47.
³ KEOJ 1983.8: 358.
⁴ KEOJ 1983.1: 76-78; 1983.3: 160.
⁵ Kim, W.Y. 1981: 22.
⁶ Murphy 1995: 30.
⁷ Bleed 1986.
⁸ Daniel & Renfrew 1988.
⁹ Daniel & Renfrew 1988; Barnes 1990b.
¹⁰ Chang, K.C. 1986a: 4.
¹¹ Lubbock 2010 [1865].
¹² An, J. 2012: 142.
¹³ Nelson 2006.
¹⁴ E.g., Hamada & Umehara 1923.
¹⁵ KEOJ 1983.1: 76-78.
¹⁶ KEOJ 1983.3: 100.
¹⁷ Chang, K.C. 1986: 16.
¹⁸ Chang, K.C. 1986: 17.

Appendix G

- ¹ Yang, X. *et al.* 2012.
² Lu, H. *et al.* 2009.
³ Underhill 1997: 117 gives green bristlegrass as *Setaria viridis*.
⁴ at the Xinglonggou site (Lee, G-A. *et al.* 2007)
⁵ Fuller, Qin & Harvey 2008.
⁶ Araki, M. *et al.* 2012.
⁷ Fuller, Qin & Harvey 2008: 44, fig. 2.1; but see Crawford (2012) who

- describes considerable controversy over classificatory schemes.
⁸ Huang, X. *et al.* 2012.
⁹ Crawford 2012.
¹⁰ Crawford & Shen 1998:863.
¹¹ It is no longer thought that rice was domesticated in the Himalayan foothills (Sato 2002), as implied by CKJ fig. 34.
¹² Zhao, Z. 2010: 104.
¹³ Huang, X. *et al.* 2012.
¹⁴ Crawford & Shen 1998.
¹⁵ Crawford 2006: 78, citing Ho Ping-Ti.
¹⁶ Liu, L. *et al.* 2007.
¹⁷ Fuller, Harvey & Qin 2007.
¹⁸ Crawford 2011.
¹⁹ Lee, G-A. *et al.* 2011.
²⁰ Crawford 2006.
²¹ Matsui, A. *et al.* 2005.
²² Rowley-Conwy, Albarella & Dobney 2012.
²³ Dobney *et al.* 2007:81.
²⁴ Fuller, Qin & Harvey 2008: 44.
²⁵ Yuan & Flad 2002.
²⁶ Yuan & Flad 2002: see site list on pp. 728–9.
²⁷ Pechenkina *et al.* 2005.
²⁸ Larson *et al.* 2010.
²⁹ Matsui, A. *et al.* 2005.
³⁰ Yamazaki, K. *et al.* 2005.
³¹ Matsui, A. *et al.* 2005.
³² Crawford 2011.
³³ Mid- to late Songze period: Fuller, Qin & Harvey 2008.
³⁴ At Amsadong site; Nelson 1993.
³⁵ Yang, D.Y. *et al.* 2008.
³⁶ Lei, C.Z. *et al.* 2007.
³⁷ Bonfiglio *et al.* 2012.
³⁸ Lee, G-A. 2011.
³⁹ Tixier-Boichard *et al.* 2011.
⁴⁰ Miao, Y-W. *et al.* 2013.
⁴¹ West & Zhou 1988.
⁴² Ovodov *et al.* 2011; Savolainen *et al.* 2002.
⁴³ Pang, J-F. *et al.* 2009; Larson & Bradley 2014.
⁴⁴ Larson & Bradley 2014.
⁴⁵ Sato, T. 2014.
⁴⁶ Yuan & Flad 2005.
⁴⁷ Cai, D. *et al.* 2011.
⁴⁸ Lei, C.Z. 2006; Cai, D. *et al.* 2014.
⁴⁹ Flad, Yuan & Li 2007.
⁵⁰ Cai, D. *et al.* 2014.
⁵¹ Betts, Jia & Dodson 2013.
⁵² Flad, Yuan & Li 2007.
⁵³ Li, X. *et al.* 2007; Flad *et al.* 2010: 963.
⁵⁴ Liu, Xinyi & Jessica Rawson, pers. comm. 17 Feb 2014.

Sources for Illustrations and Box and Table data

Publications cited below are included in the Bibliography.

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CKJ: Attributions to CKJ refer to the hardcover (1993) and paperback (1999) editions of the same book by Gina L. Barnes, albeit published with different titles by Thames & Hudson (London):

1993 *China, Korea and Japan: the rise of civilization in East Asia*

1999 *The rise of civilization in East Asia: the archaeology of China, Korea and Japan*

Sources for the original pictures can be found in CKJ endmatter; all have been modified for publication in this volume.

GLB = Gina L. Barnes

Preface

Table 0.1: mod. after CKJ fig. 5

Chapter 1

BOX 1.1: see Yang, X. 2000b for a pictographic overview.

A) Jiahu, Work in Public Domain via copyright expiry [commons.wikimedia.org/wiki/File:Jiahu_writing.gif]; B&C) Dawenkou & Liangzhu, after Demattè 2010: figs. 4, 6 with author's permission (C redrawn by Ana Marques); D) Bronze emblems, CKJ box 1b; E) Shang oracle bone, after Keightley 1978: fig. 24; F) Bronze vessel inscription, by BabelStone own work [commons.wikimedia.org/wiki/File:British_Museum_Kang_Hou_Gui_Top.jpg], mod. under CC-BY-SA 1.0; G) Jade oath Qinyang 22cm ht, from CKJ box 1e; H) Chu bamboo slips Yangtian #25, Changsha, from CKJ box 1f; script succession mod. from www.hanzim.com/hanzi.php

Fig. 1.1: mod. from CKJ fig. 1

Table 1.1: chart based on Mo, D. *et al.* 2010: Table 19.1; content compiled from Mo, D. *et al.* 2010; Liu, L. 2004; Lu, H. *et al.* 2009; Fuller *et al.* 2008; Underhill 1997, 2002; Liu & Chen 2012; Cohen 2011; Barton *et al.* 2009; Shelach 2000; Peterson 2006

Table 1.2: compiled by GLB

Table 1.3: Chulmun dates compiled from Choe & Bale 2002; Norton 2007; Lee, G-A. 2011; Choy, An & Richards 2012; Shin, Rhee & Aikens 2013. Mumun, Bronze Age and Iron Age dates from Martin Bale pers. comm. Aug 2014 and S. Onuki, pers. comm. Aug 2014.

Table 1.4: compiled by GLB

Table 1.5: Incipient–Final Jomon dates from Kobayashi, K. 2006, 2014

Table 1.6: redrawn by Sarah Ommannney after Habu 2004: fig. 2.5

Table 1.7: compiled by GLB

Chapter 2

Figs. 2.1–2.3: from CKJ figs. 2–4

Chapter 3

BOX 3.1: Data summarized mainly from Dennell 2009: 396–418; photo courtesy Fumiko Ikawa-Smith, taken 23 March 1982; illustration after CKJ fig. 11

BOX 3.2: Reprinted with minor modifications from Zhu, R. *et al.* 2003: fig. 5, with permission from Elsevier

BOX 3.3: graph after Liu, Ding & Rutter 1999: figs. 2, 3 courtesy DING Zhongli

BOX 3.4: DNA updates based on Kong, Q.P. *et al.* 2011 and Oppenheimer 2012; single exit see Macaulay *et al.* 2005; figure by GLB

Fig. 3.1: map by GLB; faunal border after Norton *et al.* 2010

Fig. 3.2: after Wang, Y. 2003: fig. 3, with permission

Fig. 3.3: after Wang, S. 2005: fig. 9–1, with permission

Fig. 3.4: Chongokni photos and line drawings: after de Lumley & Park 2011, courtesy Henry de Lumley and BAE Kidong; Luonan: after Wang, S. 2005: fig. 9–2, with permission

Fig. 3.5: courtesy Chen SHEN

Fig. 3.6: mod. from CKJ fig. 15

Table 3.1: compiled by GLB

Chapter 4

BOX 4.1: line drawings from CKJ figs. 22–23; photo courtesy Robert G. Bednarik

BOX 4.2: Japanese flora following Morisaki 2012; various icons from Wikimedia Commons, expired copyright: *Curtis' Botanical Magazine* 1918, Vilmorin-Andrieux 1904, R. Dodoens 1583; public domain Pearson Scott Foresman, HansenBCN. Pollen occurrences of different plants: based on Ni, J. *et al.* 2010

BOX 4.3: processes according to Morisaki 2012; drawings courtesy MORISAKI Kazuki and The Center for the Study of the First Americans; photo by GLB of side-blow flake knapped by MATSUZAWA Tsugio in 1978

BOX 4.4: oxygen isotope ratios, see Lambeck *et al.* 2002; graph redrawn after Oppo & Sun 2005: fig. 2

Fig. 4.1: map by GLB; microblade boundary after Qu, T. *et al.* 2013: fig. 2

Fig. 4.2: upper redrawn after Heider *et al.* 2001: fig. 8; lower redrawn and mod. from Rittenour *et al.* 2007: fig. 13

Fig. 4.3: from Tsutsumi, T. 2011: fig. 5 via KUDO Yuichiro, mod. with their permission

Fig. 4.4: after Habu 2004: fig. 6.11; map from Barnes 2008: fig. 4

Fig. 4.5: left: idealized sketch mod. from Yamamoto, T. 2001: 204; right: drawn by Ofer Bar-Yosef and courteously donated

Fig. 4.6: mod. from Seong, C. 1999: fig. 5, table 1

Fig. 4.7: mod. from Lee & Kong 2006: figs. 10, 12 with permission; photos courtesy LEE Yung-jo

Fig. 4.8: mod. from Sakashita, T. 2011: figs. 3, 5

Fig. 4.9: illustration courtesy IWASE Akira, reprinted from Nakazawa, Y. *et al.* 2011: fig. 5, with permission from Elsevier

Table 4.1: compiled mainly from Kudo & Kumon 2012; Qu, T. *et al.* 2013; Seong, C. 2011a; Lee, G. 2012; MIS stages from IUGS 2011; late glacial dates: Watanabe, T. *et al.* 2010; Clark *et al.* 2009. Rapid shifts from warmer to colder: Voelker *et al.* 2002; six global locations, and 30–19kya: Lambeck *et al.* 2002; 26.5cal.kya: Clark *et al.* 2009

Table 4.2: compiled from Aikens *et al.* 2010; Lu, T. 2006

Chapter 5

BOX 5.1: Line drawings after CKJ box 5

A) Jomon pot by PHG [commons.wikimedia.org/wiki/File:JomonPottery.JPG], public domain; D) Jomon flame pot by Chris 73 [commons.wikimedia.org/wiki/File:Jomon_vessel_3000-2000BC.jpg], CC-BY-SA 3.0 license; E) Crown vessels, by Commonsenses [commons.wikimedia.org/wiki/File:Oukangatadoki.jpg]; F) Chulmun pot by I, PHGCOM [commons.wikimedia.org/wiki/File:KoreanEarthenwareJar4000 BCEAmsa-DongNearSeoul.jpg]; G) water bottle by Doctorofcm (Own work) [commons.wikimedia.org/wiki/File:Red_Pottery_Vase_with_a_Pointed_Bottom.jpg], mod. under CC BY-SA 3.0

BOX 5.2: map & graph mod. after An, Z. *et al.* 2000: figs. 1, 2; ESM data from An, Z. *et al.* 2000: 756 and Feng, Z.-D. *et al.* 2006; monsoon strength: Wang, B. *et al.* 2008; “time-transgressive...”: An, Z. *et al.* 2000: 745; for archaeological interpretations, see Liu & Chen 2012: fig. 2.5; flawed model: Feng, Z.-D. *et al.* 2006; 8.2kya event: Liu, Y-H. *et al.* 2013

BOX 5.3: data based on Tykot 2004

Fig. 5.1: map by GLB

Fig. 5.2: upper: after Shelach 2000: figs. 14, 16; lower: photo by GLB 1987

Fig. 5.3: photo of Miyanomae site, Okayama by GLB, June 1974; pits after Habu 2004: fig. 3.3

Fig. 5.4: line-drawings from CKJ fig. 40; Chulmun axes by Good friend100 at en.wikipedia [Public domain] [commons.wikimedia.org/wiki/File:Korea-Neolithic.age-Axes-01.jpg]

Fig. 5.5: Kanto from CKJ fig. 25; Mainland after Jia, P. 2007: fig. 4–12 at 4000 BC, redrawn by Ana Marques

Fig. 5.6: from CKJ fig. 28

Fig. 5.7: from CKJ fig. 27; photo courtesy KOIKE Hiroko

Fig. 5.8: burial after Pearson 2007: fig. 2; basket from CKJ box 11

Fig. 5.9: photo courtesy KITADA Hiroko

Fig. 5.10: stone weights from CKJ fig. 31; photo by GLB, 1978

Fig. 5.11: Not to scale. Line drawings after CKJ fig. 36; Peiligang quern by CMOC Editor at Large [commons.wikimedia.org/wiki/File:CMOC_Treasures_of_Ancient_China_exhibit_-_millstone_and_roller.jpg]; Hemudu bone shovel by Gary Lee Todd at National Museum, Beijing [commons.wikimedia.org/wiki/File:Neolithic_bone_spade,_Hemudu_Culture,_Zhejiang,_1974.jpg], mod. under CC-BY-SA-all; stone sickle by Gary Lee Todd ([1])[commons.wikimedia.org/wiki/File:Neolithic_stone_sickle,_Peiligang_Culture,_Jiaxian,_Henan,_1976.jpg], mod. under CC-BY-SA-all

Fig. 5.12: courtesy Dorian Fuller

Table 5.1: three-unit division: Walker *et al.* 2012; “whole Holocene” pers. comm. regarding historical ecologists’ views from J. Habu July’14

Table 5.2: compiled from Matsui & Kanehara 2006; Crawford 2011; Lee, G-A. 2011; Kitagawa & Yasuda 2008

Chapter 6

BOX 6.1: Line drawings from CKJ box 6; Banshan phase pot (e) by Wmpearl, Public Domain [commons.wikimedia.org/wiki/File:Neolithic_Chinese_pottery_John_Young_Museum_of_Art_I.jpg]; Longshan beaker (t) by Mountain at Peking University [commons.wikimedia.org/wiki/File:Longshan_eggshell_thin_cup.jpg], mod. under CC-BY-SA-3.0; dog pitcher (u) by Gary Lee Todd [commons.wikimedia.org/wiki/File:Neolithic_dog-shaped_pottery_gui_Dawenkou_Culture,_Shandong,_1974.jpg], mod. under CC-BY-SA-2.5

BOX 6.2: M10 from CKJ fig. 46; M17 after Underhill 2002: fig. 5.32; nested boxes after Wu, H. 2010: fig. 12 ('casket grave' is his term); Water deer, Own work by Momotarou2012 [commons.wikimedia.org/wiki/File:Chinese_water_deer_Stuffed_specimen_2.jpg], mod. under CC-BY-SA-3.0

BOX 6.3: alligators in China data: Thorbjarnarson & Wang 2010: 54–64; image mod. after Liu & Chen 2012: fig. 6.13

Fig. 6.1: mod. from CKJ fig. 32; pendant photo by GLB; figurine from promotional material for the British Museum exhibit

Fig. 6.2: photo and inset by GLB; site drawing mod. from Okada, Y. 2003: fig. 9.2

Fig. 6.3: line drawing mod. from Aikens & Higuchi 1982: 3.65; photo courtesy Kazuno-shi Kyoiku Iinkai

Fig. 6.4: map by Sarah Ommanney after CKJ fig. 34

Fig. 6.5: after CKJ fig. 41

Fig. 6.6: after CKJ fig. 42

Fig. 6.7: based on CKJ fig. 41e with amendments from Peterson & Shelach 2012: fig. 4

Fig. 6.8: after Liu, L. 2004: fig. 6.5

Fig. 6.9: kilns and turntables after Kerr & Wood 2004: figs. 64, 107; anvils after Underhill 2002: fig. 6.19

Fig. 6.10: Pig dragon as alligator fetus: Thorbjarnarson & Wang 2010: 64; Hongshan pig dragon by Sailko [commons.wikimedia.org/wiki/File:Cultura_di_hongshan_(neolitico),_oggetto_rituale_zhulong_(dragone-maiale)_in_nefrite,_da_lianing,_3500_ac._ca.jpg]; tomb plans after *Wenwu* 1986.8: fig. 9, p. 8; temple plan redrawn by Ana Marques after *Wenwu* 1986.8: fig. 6, p. 2; pottery cylinder after CKJ fig. 44; Niheliang cist burial photo by GLB 1994

Fig. 6.11: after CKJ figs. 38

Fig. 6.12: Yangshao after Liu, L. 2004: fig. 4.6; Jomon after Habu 2004: fig. 5.8

Table 6.2: compiled from Liu, L. 2004: 110, 135–7

Chapter 7

BOX 7.1: tools and processes: Sax *et al.* 2004, 2008; Jinsha site and *Zhou Li* quote: Chengdu Institute 2006: 54; line drawings from CKJ box 7 except Sidun Tomb #3: mod. from *Kaogu* '84.2: 114; Longshan *yue* by Gary Lee Todd, mod. under CC-BY-SA-all [commons.wikimedia.org/wiki/File:Neolithic_jade_yue,_Liangzhu_Culture,_Zhejiang,_1987.jpg]; Liangzhu *cong*: Walters Art Museum, public domain [commons.wikimedia.org/wiki/File:Chinese_-_Cong_-_Walters_42340_-_Profile.jpg]; Liangzhu *bi*: Walters Art Museum, public domain [commons.wikimedia.org/wiki/File:Chinese_-_Bi_-_Walters_42317_-_Profile.jpg]

Fig. 7.1 map by GLB

Fig. 7.2: Liangzhu jar by Gary Lee Todd, mod. under CC-BY-SA-3.0, [commons.wikimedia.org/wiki/File:Pot,_

Liangzhu_Culture,_2600.jpg]; Shandong jar by Gary Lee Todd [commons.wikimedia.org/wiki/File:Neolithic_pottery_jar,_Longshan_Culture,_Shandong,_1975.jpg], mod. under CC-BY-SA-3.0

Fig. 7.3: after Liu & Chen 2012: fig. 7.12

Fig. 7.4: excavation photo courtesy LUAN Fengshi and Anne Underhill; stone tool photos courtesy Gwen Bennett

Fig. 7.5: North China Plain by Kanguole (Own work), Public Domain [commons.wikimedia.org/wiki/File:China_Northern_Plain_relief_location_map.png]

Fig. 7.6: after Liu, L. 2004: figs. 4.12, 4.18; CKJ fig. 48

Fig. 7.7: courtesy Prof. DING Pin 丁品 (director of Maoshan excavation), Zhejiang Provincial Institute of Archaeology, via QIN Ling and Dorian Fuller

Fig. 7.8: after Warmuth *et al.* 2012: fig. 1, redrawn by Sarah Ommanney; data from Anthony 2007: figs. 12.1, 13.2; Frachetti 2012: fig. 1

Table 7.1: compiled by GLB from He, N. 2013

Table 7.2: data from: CKJ; Wang, T. 1999; Underhill 2002; Allan 2007; Liu, L. 2004, 2009; Liu & Chen 2012; Priewe 2012

Chapter 8

BOX 8.1: face sceptre after Thorp 2006: fig. 1.15; Dadianzi painted pot after Guo, D. 1995: fig. 5.8; Shijiahe jade face after Liu & Chen 2012: fig. 7–15; plaque by Daderot (Daderot) [commons.wikimedia.org/wiki/File:Turquoise-Inlaid_Plaque_with_Stylized_Animal-Mask_Decoration,_1900–1350_BC,_Neolithic_to_Shang_period,_Erlitou_culture,_China,_bronze_with_turquoise_inlay_-_Sackler_Museum_-_DSC02627.jpg],

BOX 8.2: Lower XJD pitcher (center) from Dadianzi: CASS Institute of Archaeology 1996: fig. 41.5; Late Longshan pitcher, photo by Editor at Large [commons.wikimedia.org/wiki/File:CMOC_Treasures_of_Ancient_China_exhibit_-_white_pottery_gui_(2).jpg], mod. under CC-BY-SA-2.5; sheet-metal: Fitzgerald-Huber 1996, 2005; welding together: Zhou, W. *et al.* 2006; remaining line drawings after CKJ figs. 49, 50

Fig. 8.1: after CKJ fig. 51; Linduff *et al.* 2000: frontispiece

Fig. 8.2: compiled after Mei & Shell 1999: fig. 7.1, courtesy *Antiquity*; Linduff 1995: fig. 11; Pak, Y. 1995: fig. 4.3.7; earring and axe redrawn by Ana Marques

Fig. 8.3: after Liu & Chen 2003: fig. 19

Fig. 8.4: after Liu & Chen 2012: figs. 8.4, 8.5, and pp. 266–9

Fig. 8.5: after Li, X. 1980: fig. 20

Fig. 8.6: after CKJ fig. 53; *cong* photo by Mountain [commons.wikimedia.org/wiki/File:Cong_with_man-like_figure.jpg], mod. under CC-BY-SA-2.5

Fig. 8.7: after CKJ fig. 54; photo by Editor at Large, CMOC Treasures of Ancient China exhibit [commons.wikimedia.org/wiki/File:CMOC_Treasures_of_Ancient_China_exhibit_-_bronze_battle_axe.jpg]

Fig. 8.8: after Zhang, C. 2000

Fig. 8.9: photos by momo, mod. under CC-BY-SA-2.5

[commons.wikimedia.org/wiki/File:Bronze_Holy_Altar_(青銅神壇).jpg, commons.wikimedia.org/wiki/File:Bronze_Mask_with_Protruding_Eyes.jpg, commons.wikimedia.org/wiki/File:Sanxingdui_gold_mask.jpg]

Fig. 8.10: after Liu & Chen 2012: fig. 10.18, mod. with permission of Liu Li

Chapter 9

BOX 9.1: East Coast traditions: data from Kerr & Wood 2004: 87–142; whiteware: Kerr & Wood 2004: 151–2; less colored raw materials: Wood 2010; proto-porcelain: Yin, M. *et al.* 2011; rubbings after Meacham 1993?: p. 23; bowl line drawing after Williams 1980 p. 40; photo by Rosemania at Palace Museum, Beijing [commons.wikimedia.org/wiki/File:China_shang_white_pottery_pot.jpg]

Fig. 9.1: map by GLB; colony locations after Shaughnessy 1999: 312–313

Fig. 9.2: oracle bones after Keightley 1978: figs. 2, 6; photo by Rosemania [commons.wikimedia.org/wiki/File:Oracle_bones_pit.jpg], mod. under CC-BY-SA-2.5

Fig. 9.3: plan after Liu & Chen 2012: fig. 8.8; photos by GLB; model drawing by Zhongguo Kexueyuan Kaogu Yanjiusuo Erlitou Gongzuodui

Fig. 9.4: map after Liu & Chen 2012: fig. 8.9; building after Thorp 2006: fig. 2.9

Fig. 9.5: upper after Thorp 2006: fig. 3.7; lower after Liu & Chen 2012: fig. 10.4; assembled by Ana Marques

Fig. 9.6: lower left after Thorp 2006: fig. 3.3; upper right after CKJ fig. 57; photo by GLB 2008

Fig. 9.7: upper left after CKJ fig. 57; bronze vessel after Thorp 2006: fig. 4.10; photo from FitzGerald 1978, p. 40, scanned with permission from Phaidon

Fig. 9.8: Fuhao photo by GLB; bronze knives photo by Claire H. at Metropolitan Museum of Art [commons.wikimedia.org/wiki/File:Two_Bronze_Knives_-_Shang_Dynasty.jpg], mod. under CC-BY-SA-2.5

Fig. 9.9: Tonglushan after CKJ fig. 66; Tongling after Thorp 2006: fig. 2.17

Fig. 9.10: tonal ritual music: Falkenhausen 1991, 1993; helmet photo by Gary Lee Todd [commons.wikimedia.org/wiki/File:W_Zhou_Yan_helmet], mod. under CC-BY-SA-2.5; *gui* photo by PericlesofAthens in Musée Guimet [commons.wikimedia.org/wiki/File:Western_Zhou_Gui_Vessel.jpg], mod. under CC-BY-SA-2.5; *ding* photo by Mountain in Shanghai Museum [commons.wikimedia.org/wiki/File:Ding_with_animal_mask.jpg], mod. under CC-BY-SA-2.5; Zhou bell photo, Los Angeles County Museum of Art, public domain [commons.wikimedia.org/wiki/File:Bell_(Zhong)_with_Dragons_and_Spirals_LACMA_AC1998.251.17.jpg]

Fig. 9.11: after CKJ figs. 62, 63; photo by GLB 2008

Table 9.2: compiled from Liu & Chen 2012; Thorp 2006; Liu & Chen 2003; Jarus 2010; specific information discussed in the following text is also from these sources

Chapter 10

BOX 10.1: compiled mainly from Wagner 1993, 2008

Fig. 10.1: CKJ fig. 61

Fig. 10.2: courtesy John H. Lienhard, www.uh.edu/engines/epi1676.htm

Fig. 10.3: bits mod. from Mei 2000: fig. 2.33; ring after Shelach 2009: fig. 3.3

Fig. 10.4: by ASDFGH, via Wikipedia [en.wikipedia.org/wiki/Autonomous_administrative_divisions_of_China#mediaviewer/File:Autonomous_rule_divisions_in_China.png], mod. under CC-BY-SA-3.0

Fig. 10.5: based on Yang, J. 2012: fig. 1

Fig. 10.6: tomb guardian by Sean Pathasema/Birmingham Museum of Art [commons.wikimedia.org/wiki/File:Chinese_tomb_guardian_300_BC.jpg], mod. under CC-BY-SA-3.0

Fig. 10.7: after Linduff 2009: fig. 4; redrawn by Ana Marques

Fig. 10.8: shaft grip, Public Domain via LACMA [commons.wikimedia.org/wiki/File:Shaft_Grip_(Zun)_with_Interlaced_Dragons_LACMA_AC1994.29.1.jpg], mod. under CC-BY-SA-2.5; Mt mirror, by Editor at Large [commons.wikimedia.org/wiki/File:CMOC_Treasures_of_Ancient_China_exhibit_-_bronze_mirror.jpg]; tendril mirror by Hiart [commons.wikimedia.org/wiki/File:Warring_States_period_bronze_mirror_with_four_dragons_design,_HAA.jpg]; Chu altar by Greg kf [commons.wikimedia.org/wiki/File:Bronze_jin_from_Henan.jpg], mod. under CC-BY-SA-3.0

Fig. 10.9: mod. from Wagner 2008: figs. 46, 48–1, 2, 3, 5

Fig. 10.10: bronze sword by Editor at Large [commons.wikimedia.org/wiki/File:CMOC_Treasures_of_Ancient_China_exhibit_-_bronze_sword.jpg], mod. under CC-BY-SA-2.5; line drawings mod. from Wagner 2008: plates 12 on p. 229, 17 on p. 232, 22 on p. 234, 27 on p. 237

Fig. 10.11: Xiadu iron after Li, X. 1985: figs. 143–5; Wagner 1993: fig. 423

Fig. 10.12: Zhou spade coin by David Hartill [commons.wikimedia.org/wiki/File:Square_Shoulder_Spade.jpg], mod. under CC-BY-SA-2.5; Zhou knife coins by Davidhartill (Scan of my coins) [commons.wikimedia.org/wiki/File:Knife_Money_Yan.jpg]; Qin coin by Sir Langan (Own work) [commons.wikimedia.org/wiki/File:Qin_Coin.png], mod. under CC BY-SA 3.0

Fig. 10.13: burial after Wu, X. 2004: fig. 8.7; buckles after Pak, Y. 1995: 246, 268

Fig. 10.14: after Wu, X. 2004: fig. 8.6

Table 10.1: compiled from Teng, M. 2014

Table 10.2: compiled from Yang, J. 2012

Table 10.3: compiled from Yang, J. 2012

Chapter 11

BOX 11.1: For a simple introduction to Altaic, see Wikipedia; convergence and borrowing hypothesis: Vovin 2010; migration of Tungusic speakers: e.g. Kim, J.-b. 1975; Shandong > Liaodong > Korean Peninsula >

Japanese Islands: Whitman 2011, with archaeological data from MIYAMOTO Kazuo; Koguryo Japonic placenames: Beckwith 2004; insights from Bob Ramsey

BOX 11.2: 'dual structure' hypothesis: Hanihara, K. 1991, 2000; modern Japanese DNA: Tanaka, M. *et al.* 2004; Jomon overwhelmed by migrants: Hammer *et al.* 2006; Korean Peninsula skeletal remains: Bac, K. 2014; dual wave of immigration to Peninsula: Kim, W. *et al.* 2000; "spread of male-mediated agriculture": Jin, H.-j. *et al.* 2009, Zhang, F. *et al.* 2007; ancient mtDNA from Shandong: Yao, Y.-G. *et al.* 2003; avg. heights: Hudson 1999a: 62

BOX 11.3: after CKJ box 11

BOX 11.4: Mainland: Han & Nakahashi 1998; Luan, F. 2013: 426–427; Jomon occurrences Kusaka, S. *et al.* 2009: table 1; Doigahama: Nakahashi, K. 1990; postmarital residential rules: asserted by Harunari 1986; Yoshigo: Kusaka, S. *et al.* 2009, Temple *et al.* 2011; Inariyama: Kusaka, S. *et al.* 2011

Fig.11.1: map by GLB

Fig. 11.2: mod. from Pak, Y. 1995: figs. 4.23, 4.32; narrow dagger redrawn by Ana Marques

Fig. 11.3: after Pak, Y. 1995: fig. 4.31

Fig. 11.4: table-type dolmen by Hairwizard91 [commons.wikimedia.org/wiki/File:Korea-Ganghwado-Dolmen-02.jpg], mod. under CC-BY-SA-2.5; Go-board dolmens, photos by GLB

Fig. 11.5: burnished pot: photo by GLB; points redrawn by Ana Marques after CKJ fig. 75; pendants drawn by Ana Marques; stone daggers by Good friend100 [commons.wikimedia.org/wiki/File:Korea-Bronze-age-Daggers-02.jpg]

Fig. 11.6: mod. with permission after Bale & Ko 2006: figs. 3, 10, and Bale 2011: fig. 10

Fig. 11.7: after Bale 2011: fig. 37, mod. with permission; tabulation by GLB from Bale 2011

Fig. 11.8: after Onuki, S. 2005: fig. 2, mod. with permission

Fig. 11.9: photo: Seoul National Museum (no response, assumed permission); line drawings after CKJ fig. 78

Fig. 11.10: mod. after Rhee, S.-N. *et al.* 2007: fig. 3

Fig. 11.11: photo by GLB, permission of Fukuoka Maibun via Y. Abe and T. Kusumi; line drawings A-C after Yane 1984, D after Barnes 1990c

Fig. 11.12: after Kobayashi, K. 2014, mod. with permission

Fig. 11.13: after CKJ fig. 83 (left)

Fig. 11.14: after CKJ figs. 80, 85

Fig. 11.15: teapot by Daderot [commons.wikimedia.org/wiki/File:Pot_with_Spout,_1000–300_BC,_Japan,_earthenware,_excavated_at_Nagawa,_Aomori_-_Art_Institute_of_Chicago_-_DSC00127.jpg], mod. under CC-BY-SA-1.0; seated Jomon figurine by PHGCOM, Own Work (British Museum) [commons.wikimedia.org/wiki/File:Late_Jomon_clay_statue_Kazahari_I_Aomoriken_1500BCE_1000BCE.jpg], mod. under CC-BY-SA-3.0; stone plaque by Sailko, Own Work (Tokyo National Museum) [commons.wikimedia.org/wiki/File:Periodo_jomon_gangu_1000–400_a.c..jpg], mod. under CC-BY-SA-3.0; goggle-eye Jomon figurine

by Bigjap, Own Work [commons.wikimedia.org/wiki/File:Dogu-Jomon.jpg]

Fig. 11.16: after CKJ fig. 83 (right)

Chapter 12

BOX 12.1: wheel of the law by Ddalbiez (Own Work) [commons.wikimedia.org/wiki/File:Khao_Khlang_Nai-004.jpg], mod. under CC-BY-SA-3.0

Fig. 12.1: after CKJ fig. 91

Fig. 12.2: line drawing after CKJ fig. 92; bronze horse carriage by Ovedc (Own Work) [commons.wikimedia.org/wiki/File:Terracotta_Army_(35).jpg]

Fig. 12.3: photo by Ovedc (Own Work) [commons.wikimedia.org/wiki/File:Terracotta_Army_(34).jpg]

Fig. 12.4: after Wang, Z. 1982: fig. 42 (note that the plans for figures 37 and 42 are reversed in this publication; 42, stated to be Wei, is actually Han); data from Wang, T. 1999

Fig. 12.5: after CKJ fig. 98

Fig. 12.6: line drawings from CKJ box 12–f; Han figurine, by Sailko, Own Work (Art Gallery of New South Wales) [commons.wikimedia.org/wiki/File:Nswag_dinastia_han,figurina_dipinta_di_danzatrice.jpg]; Han architecture, by Gary Lee Todd (Henan Provincial Museum) [commons.wikimedia.org/wiki/File:Han_Dynasty_pottery_tower2.jpg]

Fig. 12.7: drawings after CKJ fig. 96; photo by Pericles of Athens [commons.wikimedia.org/wiki/File:Earthenware_figures_playing_liubo,_Han_Dynasty_4.jpg]

Fig. 12.8: line drawing after CKJ fig. 97; Changsha silk painting by English, artist unknown (Public domain), photograph by gAHqReEjqoLl5w at Google Cultural Institute [commons.wikimedia.org/wiki/File:T-shaped_Painting_on_Silk_-_Google_Art_Project.jpg], mod. under CC-BY-SA-3.0; Mawangdui dishes by David Schroeter (Flickr: DSC02614) [commons.wikimedia.org/wiki/File:Lacquer_from_han_dynasty_mawangdui.jpg], mod. under CC-BY-SA-2.0

Fig. 12.9: tomb drawing after CKJ box 12–b; hollow brick by 猫猫的日記本, Own Work [commons.wikimedia.org/wiki/File:A_Hollow_Brick_with_Geometric_Design_Excavated_from_the_Site_of_Xianyang_Palace_I_02_2012–09.jpg]; drawing of painting by Maria Roman from Nickel 2000: fig. 9; brick rubbings after Watt 1980: Pl. II

Fig. 12.10: after Wu, H. 1989: figs. 23, 6

Fig. 12.11: map by GLB

Fig. 12.12: line drawing after CKJ fig. 94; photo of stone horse by GLB; horse figurines by unknown author, Own Work, designated Public Domain [commons.wikimedia.org/wiki/File:Eastern_Han_terracotta_horse_figurine.jpg]

Fig. 12.13: line drawings after CKJ fig. 93; cowrie container by Editor at Large, Own Work [commons.wikimedia.org/wiki/File:CMOC_Treasures_of_Ancient_China_exhibit_-_bronze_cowrie_container.jpg], mod. under CC-BY-SA-2.5

Fig. 12.14: line drawing after Miller *et al.* 2006; tomb site photo courtesy Erdenebaatar Diimaajav; cauldron photo by GLB

Chapter 13

Fig. 13.1: map by GLB, inset after CKJ fig. 101; territories and historical data from Jung, I-s. 2013: map 5.1; Lee, S. 2013: map 8.1; Byington 2013: map 10.1

Fig. 13.2: after Byington 2003: fig. 5.2, with author's permission

Fig. 13.3: line drawing after Oh, Y. 2013: fig. 4.1; photos after Oh, Y. 2013: fig. 4.3, mod. with author's permission

Fig. 13.4: after CKJ fig. 103

Fig. 13.5: after Barnes 2001: fig. 3.1

Fig. 13.6: map by GLB

Fig. 13.7: map after Murakami, Y. 1998: 20; stamp by Unknown Han Dynasty seal engraver, issued by Japan Post (Own stamp collection) [Public domain] [commons.wikimedia.org/wiki/File:Postage_stamp_of_kin-in_1989.png]

Fig. 13.8: map after Kidder 2007: fig. 7.2; bells & weapons photo by GLB; single bell by PHGCOM (self-made, photographed at Musée Guimet), mod. under CC-BY-SA-3.0 [commons.wikimedia.org/wiki/File%3ADotakuBronzeBellLateYayoi3rdCenturyCE.jpg]; Yayoi daggers by I, PHGCOM at Musée Guimet [commons.wikimedia.org/wiki/File:YayoiBronzeSpearTip1-2ndCenturyKyushu.jpg], mod. under CC-BY-SA-3.0

Fig. 13.9: left: after Mizoguchi 2013a: fig. 6.4; photo by GLB 1979

Fig. 13.10: after CKJ fig. 90-b

Fig. 13.11: redrawn by Durham Archaeological Services after Shimojo 2003 and mod. from Barnes 2007: fig. 3.6; gold seal by Unknown Han Dynasty seal engraver; issued by Japan Post (Own stamp collection) [Public domain], [commons.wikimedia.org/wiki/File%3APostage_stamp_of_kin-in%2C_1989.png]

Fig. 13.12: after Barnes 2007: fig. 3.7 derived from Seyock 2003

Table 13.1: data from Yi, Y.H. 2009

Chapter 14

Box 14.1: gold buckle by ddol-mang [commons.wikimedia.org/wiki/File:%ED%8F%89%EC%96%91_%EC%84%9D%EC%95%94%EB%A6%AC_%EA%B8%88%EC%A0%9C%EA%B5%90%EA%B5%AC.jpg], mod. under CC-BY-SA-2.0; gold cap photo by Neil Noland [commons.wikimedia.org/wiki/File:Gold_Cap.jpg], mod. under CC-BY-SA-2.0; earring pair by pressapochista [commons.wikimedia.org/wiki/File:Geumjesimyophyeongisik_(Heart-shaped_gold_earrings_for_the_king).jpg]; gold earring, 8.6cm, National Treasure #90, National Museum of Korea (no response, assumed permission); gold crown by somedragon2000 [commons.wikimedia.org/wiki/File:Korea-Seoul.National.Museum-Silla-Crown-01.jpg], mod. under CC-BY-SA-2.0. Crown sketch, after CKJ fig. 115. Info on jadeite: Lindstrom & Uchiyama 2012; on Silla gold: Lee, H. 2010b.

Box 14.2: site plan after Hudson & Barnes 1991; photo of Yoshinogari inner precinct by Saigen Jiro (Own work) [commons.wikimedia.org/wiki/File:Yoshinogari-seki_minami-naikaku.jpg]; watchtower photo by GLB; mound-burial excavation by Saigen Jiro (Own work) [commons.wikimedia.org/wiki/File:Yoshinogari-seki_funkyuubo.jpg]

Fig. 14.1: photos by GLB; line drawing after Barnes 2001: fig. 6.7

Fig. 14.2: mod. from Barnes 2001: fig. 1.4

Fig. 14.3: line drawing after CKJ fig. 111-a; photos by GLB

Fig. 14.4: photos by GLB; Silla tomb #155 after Kim, W.Y. 1983: fig. 21; Tae-Kaya Chisan-dong tomb #44 after Kim & Nishitani 1984: fig. 131

Fig. 14.5: photo courtesy SHIN Kyung Cheol and crew; stoneware after CKJ fig. 116

Fig. 14.6: mod. from Barnes 2001: fig. 5.1, CKJ fig. 89

Fig. 14.7: Horaisan photo by GLB; tiered mound: Aozuka Tomb notice board, Nagoya, photo by GLB; graph after Tsude 2005: fig. 6; Kaya sacrifices, see Park, H.W. 2012: 145

Fig. 14.8: line-drawing after Kondo, Y. 1986: fig. 11; cylindrical haniwa photo by GLB on Goshiki-zuka, Kobe; people haniwa from Banjoyama Tomb, Osaka, courtesy Chikatsu-Asuka Museum

Fig. 14.9: deity-beast mirror and figure drawings after Edwards 1999: figs. 2, 5; TR-mirror cross-section after Barnes 1996: fig. 2; bracelets after Shiraishi, T. 2004: 98; staff: after Barnes 2007: fig. 7.4

Fig. 14.10: drawing after Barnes 2007: fig. 8.1; photo courtesy Kamitsuke no Sato Museum, Takasakishi Kyoi

Fig. 14.11: Yamato cuirass, neckguard, visored helmet and keeled helmet, Kaya cuirass after Nogami, J. 1991: 396, 398, 421; Koguryo horse-rider after Yang 1985: fig. 31.4; Paekche 7-branched sword after Kidder 1964: 107; Kaya blades after Kang, B.W. 2000: fig. 13

Fig. 14.12: drawings after Choi, J. 2013: figs. 6, 17; photo by GLB

Fig. 14.13: photos at Pangji-dong #1 in Seoul by GLB; line-drawings after CKJ fig. 113 c, d

Fig. 14.14: line drawings after CKJ fig. 114-a, c, d; Anak mural photo by Hairwizard91 (Public domain) [commons.wikimedia.org/wiki/File:An3_man.jpg]

Figure 14.15: stone sculpture replica based on Iwatoyama Tomb, photo by GLB; tomb paintings: line drawing after Kidder 1964: fig. 33; B&W photo after Kidder 1964: pl. 76 with Thames & Hudson permission

Chapter 15

Fig. 15.1: map by GLB; silk after CKJ fig. 99; camel & driver by Gary Lee Todd (Luoyang Museum) [commons.wikimedia.org/wiki/File:Tang_Dynasty_sancai_pottery_camel_and_man.jpg], mod. under CC-BY-SA-3.0

- Fig. 15.2: 6c Buddha, 26" tall painted limestone, by Sean Pathasema/Birmingham Museum of Art [commons.wikimedia.org/wiki/File:Buddha-BMA.jpg]; Longmen cave photos by GLB 2008
- Fig. 15.3: pagoda by Gisling, Own Work [http://commons.wikimedia.org/wiki/File:%E6%B4%9E9%98%B3%E7%99%BD%E9%A9%AC%E5%AF%BA%E9%BD%90%E4%BA%91%E5%A1%94.jpg]; relic box by Peter17, Own Work [commons.wikimedia.org/wiki/File:Famen_temple_25.jpg]; Bodhisattva image, after Barnes 1995b: fig. 5
- Fig. 15.4: after CKJ fig. 118
- Fig. 15.5: line drawings after Barnes 2001: fig. 6.9; photo by GLB
- Fig. 15.6: Chon'gam-ri temple plan from Kim, S-w. 2008: pl. 1; Asuka-dera and Kawahara-dera plans from Kidder 1972: figs. 27, 34
- Fig. 15.7: map after Barnes 2001: fig. 8.7; Anapchi pavilion photo by GLB; Hwangnyong-sa pagoda model by Rennles (a flickr user) [commons.wikimedia.org/wiki/File:Hwangnyongsa_Pagoda_miniature.jpg], mod. under CC-BY-SA-2.0
- Fig. 15.8: roof tiles after Tsuboi & Tanaka 1991: fig. 7; map after CKJ 122

- Fig. 15.9: line drawings after CKJ fig. 126; photos by GLB
- Fig. 15.10: after Lee, K.B. 1984: map on p. 70
- Fig. 15.11: *jori* illustration after Tsude 1989: fig. 11; *jori* diagrams after CKJ fig. 127
- Fig. 15.12: photo by GLB at Heijo site museum
- Fig. 15.13: model photo at Rekihaku; line-drawings after Okada, H. n.d.
- Fig. 15.14: pillow photo by GLB, Heijo site museum; Tang whiteware from Walters Art Museum, Public domain [commons.wikimedia.org/wiki/File:Chinese_-_Bowl_-_Walters_492095.jpg]; Silla stamped ware from Walters Art Museum, Public domain [commons.wikimedia.org/wiki/File:Korean_-_Stamped_Jar_-_Walters_492764_-_Profile.jpg]; inlaid mirror by Imperial Agency, Japan (Public domain) [commons.wikimedia.org/wiki/File:8Lobed_Mirror_Inlay-Shosoin.jpg]
- Fig. 15.15: Shosoin by Moja [commons.wikimedia.org/wiki/File:Shoso-in.jpg]; Tang fashions courtesy of Nara Institute of Cultural Properties; Heijo objects photo by GLB at Heijo site museum

Chapter 16

Table 16.1: after CKJ fig. 7

Bibliography

Note:

- Throughout this book, citation of CKJ refers to the hardcover (1993) and paperback (1999) editions of the same book, albeit published with different titles by Thames & Hudson (London):
1993 *China, Korea and Japan: the rise of civilization in East Asia*
1999 *The rise of civilization in East Asia: the archaeology of China, Korea and Japan*
- Authors' names have been regularized across all of their publications, for sensible alphabetization. For example, Chang Kwang-chih, Kwang-chih Chang and K.C. Chang are all the same person; below his full name is used for all his publications, though cited in endnotes as 'Chang, K.C.'
- References in all chapter footnotes, endnotes, the Appendices and the Sources for Figures and Box and Table data appear here.

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INDEX IV. SUBJECTS

[plain numbers = page, Ap=Appendix, B=BOX, Ch=Chapter, F=Figure, T=Table]

This index is a combination of straight alphabetical listing and listing within categories, marked in ALL CAPS. For example, 'cattle' occurs only under ANIMALS, to save space. Please look further if you cannot find what you expect. For sites/cultures not listed here, see INDEX I.

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